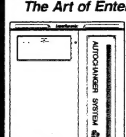
PIONEER®
*The Art of Entertainment*

# *Service Manual*




ORDER NO.
ARP2611

## CD CDV LD AUTOCHANGER

# LC-V200
# LC-V100

### LC-V200 AND LC-V100 HAVE THE FOLLOWING:

| Type | Model | | Power Requirement | Remarks |
|---|---|---|---|---|
| | LC-V200 | LC-V100 | | |
| KUC | ○ | – | AC120V only | |
| SEM | – | ○ | AC110V, 120V, 220 – 230V, 240V (Switchable) | |

- **This manual is applicable to the following : LC-V200/KUC; LC-V100/SEM.**
- **Ce manuel pour le service comprend les explications de réglage en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**

## CONTENTS



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**PIONEER ELECTRONICS AUSTRALIA PTY. LTD.** 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: (03) 580-9911

SI SEPT. 1992 Printed in Japan

# 1. SAFETY INFORMATION

**This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.**
**Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.**

WARNING
**Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).**
**When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.**

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols -▮▭▮- (fast operating fuse) and/or -▮▭▮- (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible -▮▭▮- (fusible de type rapide) et/ou -▮▭▮- (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

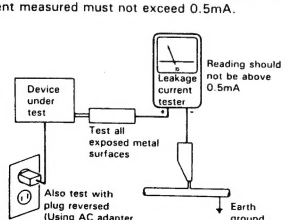
(FOR USA MODEL ONLY)

## 1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

**LEAKAGE CURRENT CHECK**

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.




AC Leakage Test

**ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.**

## 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

PIONEER
*The Art of Entertainment*

# Service Manual

ORDER NO.
**RRV1616**

**CD CDV LD AUTOCHANGER**

# LC-V100

**● Refer to the service manual ARP2611 for LC-V100/SEM.**

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

| Type | Model | Power Requirement | The voltage can be converted by the following method. |
|---|---|---|---|
| | LC-V100 | | |
| SEM8 | O | AC110V/120V/220–230V/240V | With the voltage selector |

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T-SZE MAY 1996 Printed in Japan

# CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

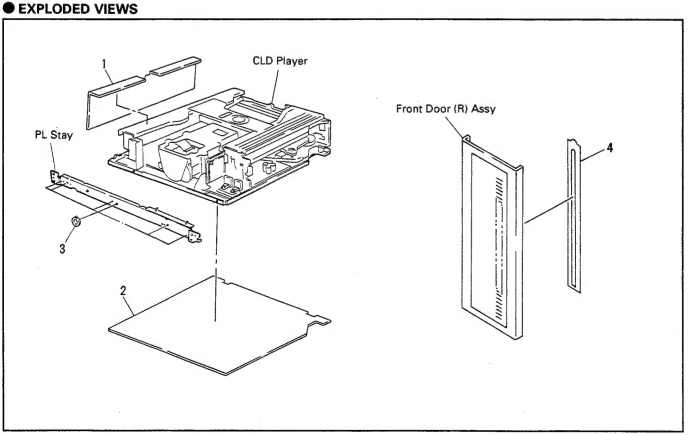
## ■ CONTRAST OF LC-V100/SEM8 AND LC-V100/SEM

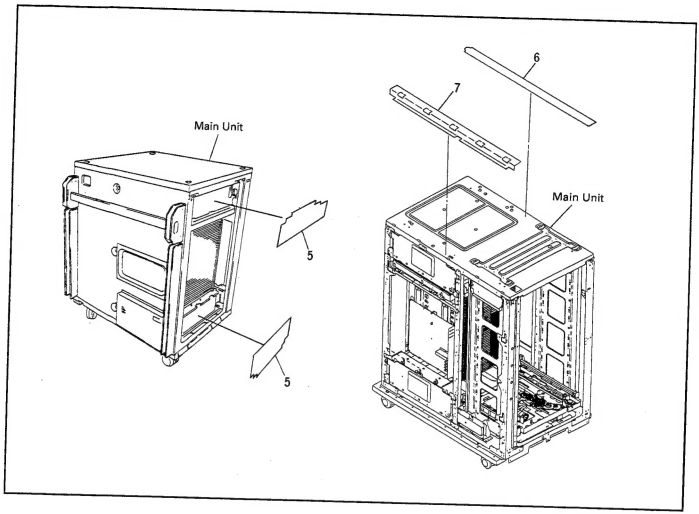
LC-V100/SEM8 and LC-V100/SEM have the same construction except for the following:

| Mark | Symbol & Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | LC-V100/SEM | LC-V100/SEM8 | |
| NSP | Gasket | Not used | DEB1323 | |
| | Shield Sheet A | Not used | DEC1959 | *1 No. 1 |
| | PL Insulation Sheet | Not used | DEC1960 | *1 No. 2 |
| | Shield Sheet C | Not used | DEC1961 | *1 No. 6 |
| | Shield Sheet D | Not used | DEC1962 | *1 No. 7 |
| | Shield Sheet E | Not used | DEC1963 | *1 No. 5 |
| | Shield Sheet F | Not used | DEC1971 | *1 No. 4 |
| | PL Stay | RNE1547 | DNH2149 | |
| | PL Lock Holder | RNE1549 | DNH2150 | |
| NSP | Ferrite Clamp | Not used | DTH1175 | |
| NSP | CE Mark Label | Not used | RRW1222 | |
| NSP | Ferrite Clamp | Not used | RTH1003 | |
| | Fiber Washer | Not used | VEC1450 | *1 No. 3 |

*1 : The numbers in the remarks column correspond to the numbers on the exploded diagram. Refer to "EXPLODED VIEWS".

### ● EXPLODED VIEWS






## P.S

1. CIOB unit (RWG1010) is made a design change like the following:

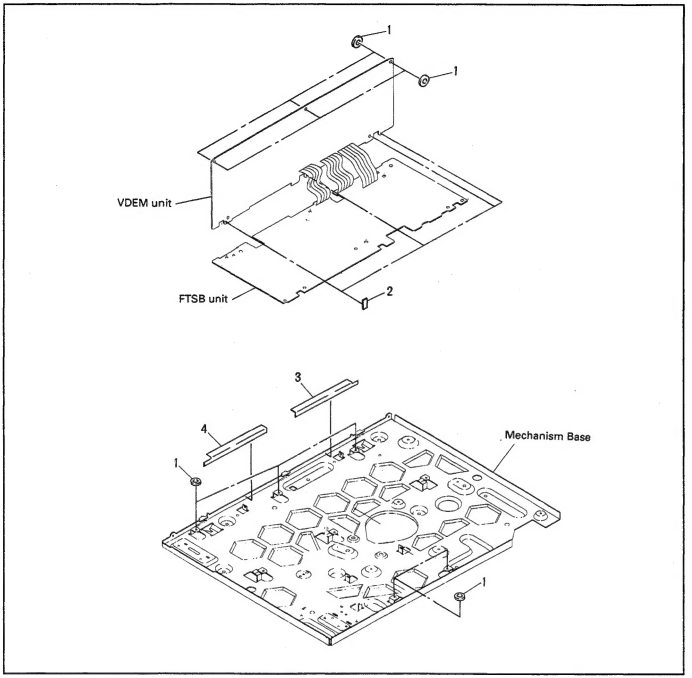
| Mark | Symbol & Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | OLD | NEW | |
| ⚠ | L201–L206 | Not used | VTH1020 | |

2. CLD player unit (RXX1546) is made a design change like the following:

| Mark | Symbol & Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | OLD | NEW | |
| | Fiber Washer | Not used | VEC1450 | ＊1 No. 1 |
| | Spacer (A) | Not used | DEC1968 | ＊1 No. 2 |
| | Spacer (B) | Not used | DEC1969 | ＊1 No. 3 |
| | Spacer (C) | Not used | DEC1970 | ＊1 No. 4 |

＊1 : The numbers in the remarks column correspond to the numbers on the exploded diagram.
Refer to "EXPLODED VIEWS (CLD PLAYER SECTION)".

● **EXPLODED VIEWS (CLD PLAYER SECTION)**



## (FOR EUROPEAN MODEL ONLY)

VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVERSEL
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING!
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

LASER
Kuva 1
Lasersateilyn varoitusmerkki

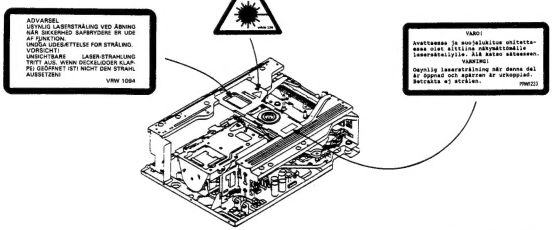
WARNING!
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1. SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

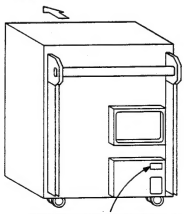
LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LASER
Picture 1
Warning sign for laser radiation

## LABEL CHECK




**FRONT**




### Additional Laser Caution

1. The ON/OFF statuses of the side-A/B detection switch (TURN switch on the MECHANISM assembly), slider-position detection switches (PARK 1, 2 and 3 on the MECHANISM assembly) and loading-status detection switches (SW 1, 2 and 3 on MSWB assembly) are detected by the microprocessor (IC751 in the FTSB unit).
   To permit the laser diode to oscillate, it is required to set the side-A/B detection switch for side A (IC751 in the FTSB unit, pin 47 XTURN A=L and pin 48 XTURN B=H) or the slider-position detection switch for the LD ACTIVE status (PARK 1: OFF, PARK 2: OFF, PARK 3: OFF), and to set the loading-status detection switch for clamped state (SW 1: OFF, SW 2: ON, SW 3: ON). As long as these requirements are not satisfied, the laser diode will not oscillate. When the requirements are met in any way, the laser diode can oscillate. The laser diode oscillation will continue if the collector and the base of Q822 in the FTSB unit are shorted to each other (fault condition).
   In test mode (See page 207), the laser diode oscillates when the microprocessor detects a PLAY signal, with the above requirements satisfied.
2. When drawn out from the unit, close viewing through the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

# 2. MAIN BOARDS AND PARTS ARRANGEMENT DIAGRAMS

## 2.1 MAIN PARTS ARRANGEMENT DIAGRAM

**Note :** When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS".

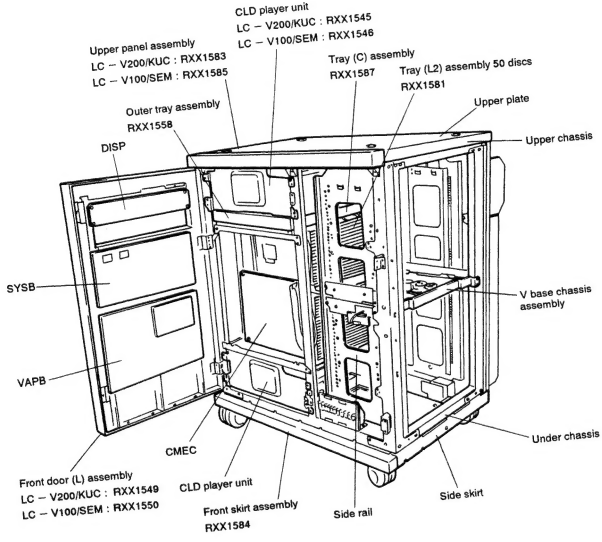



Fig. 1–1.

## 2.2 MAIN BOARDS ARRANGEMENT DIAGRAM

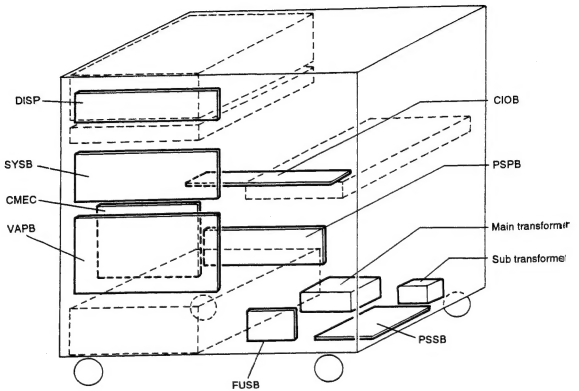



Fig. 1–2.

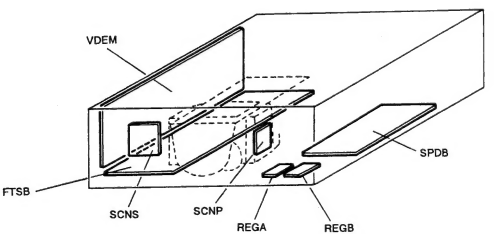
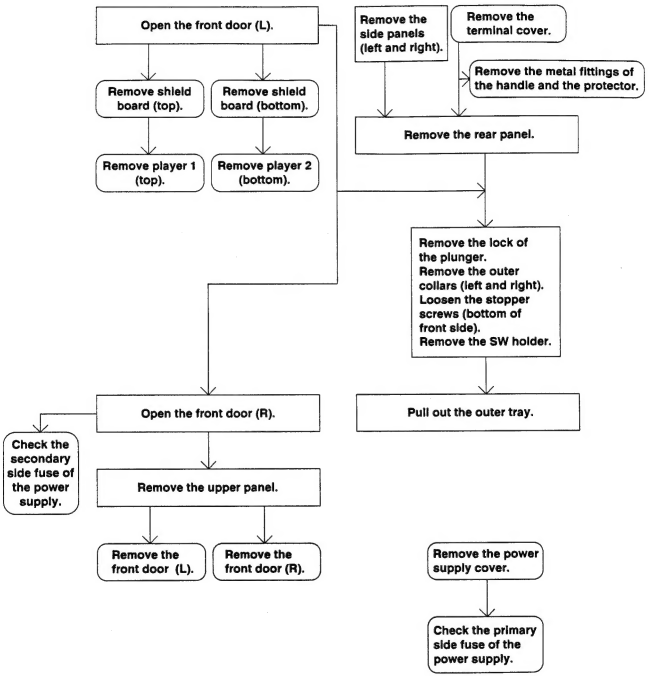



Fig. 1–3.

# 3. REMOVAL

## 3.1 OUTLINE OF REMOVAL PROCEDURE



### 3.2 OPENING OF FRONT DOOR (L)

1) Insert a hexagonal wrench (4 mm across) into the two holes on the front door (L) and loosen the screws inside.

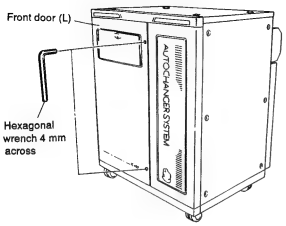



Fig. 1

2) Open the ceiling door. If it is locked, unlock it with the key (a 3 mm across hexagonal wrench can be used as the key).

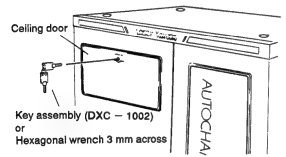



Fig. 2

3) Hold the top right of the ceiling panel and while lifting the door (L) up, open it towards you.

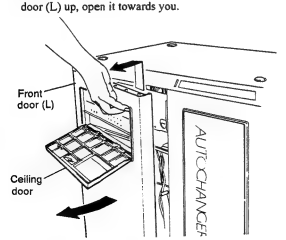



Fig. 3

### 3.3. REMOVAL OF PLAYER

1) Open the front door (L).
2) Remove the screws at the △ marks on the shield board.
   Upper player:7 screws
   Lower player:8 screws

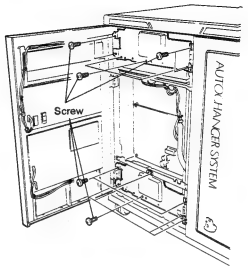



Fig. 4

3) Remove the two screws at the △ marks of the PL stay.
4) Disconnect the connector connected to the relay board of the player from the unit.

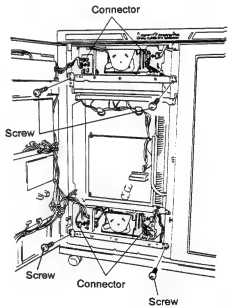



Fig. 5

5) Pull out the player towards you.
At this time, make sure that the connector pulled out does not get caught.
Also, when drawing out the upper player, be careful not to scratch the name plate of the plus – one tray (standard tray).

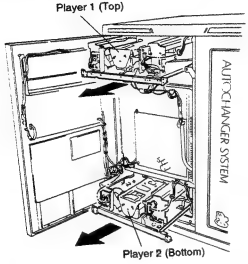



Fig. 6

6) Remove the three screws and PL stay from the player.
**Note :** As the PL stay of the bottom player has an edge cover, mount it correctly.

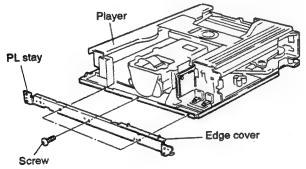



Fig. 7

## 3.4 OPENING OF FRONT DOOR (R) (CHECKING SECONDARY SIDE FUSE OF POWER SUPPLY)

1) Open the front door (L).
2) Remove the three screws.

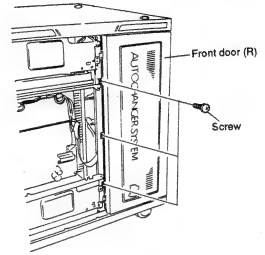



Fig. 8

3) Open it towards you.
**Note :** Use the service guide (quick reference to error codes, etc.) attached on the inside of the front door (R).
The secondary side fuse of the power supply can also be checked in this condition.

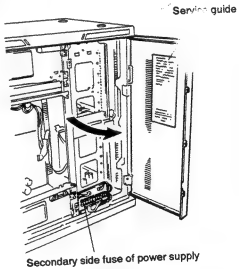



Fig. 9

## 3.5 REMOVING OF SIDE PANEL

Remove the six screws on the left and right respectively with a hexagonal wrench (3 mm across), and remove the side panel.

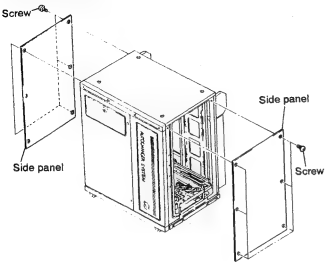



Fig. 10

## 3.6 REMOVAL OF REAR PANEL

1) Remove the twelve screws (black) securing the metal fittings of the handle and the protector and remove these metal fittings, handle pipe and protector.

**Note :** As these parts are heavy, be careful not to drop them on you.

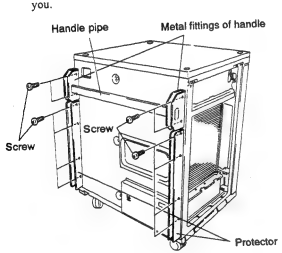
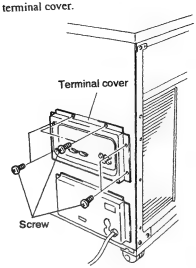



Fig. 11

2) Remove the six screws holding the terminal cover and open it. Pull out the connector, open the cord holder and remove the terminal cover.



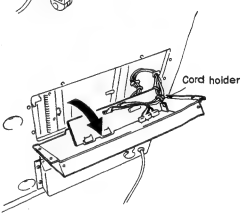




Fig. 12

3) Remove the three screws at the center and remove the rear panel.

**Note :** Be careful not to bend the hook for temporary securing.

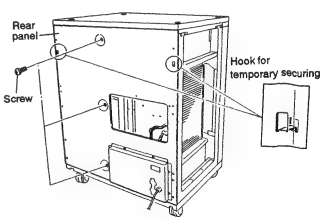



Fig. 13

### 3.7 REMOVAL OF UPPER PANEL

With the front doors (L), (R) open, remove the three screws securing the upper panel.
The upper panel can be removed by lifting it up.

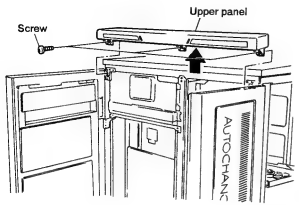



Fig. 14

### 3.8 REMOVAL OF FRONT DOORS (L), (R)

With the upper panel removed, the doors can be opened by opening them about 90 deg and lifting them up.

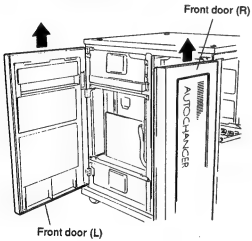



Fig. 15

### 3.9 CHECKING THE PRIMARY SIDE FUSE OF THE POWER SUPPLY

1) Remove the six screws of the power supply cover.
2) Remove the power supply cover.
* Four claws of the power supply cover (two at the bottom and one at each side) are inserted in the rear panel.

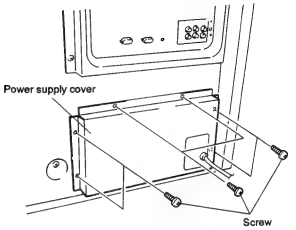



Fig.16

3) The primary side fuse of the power supply can be checked and replaced in this condition.
4) When removing the board, also remove the AC cord holder and the four screws at the top and bottom.

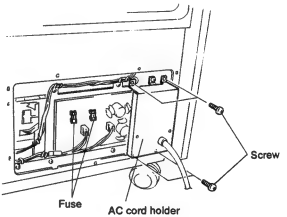



Fig.17

### 3.10 DRAWING OUT THE OUTER TRAY

When the outer tray does not open even if the power has been supplied, open it as follows.

1) Remove the rear panel.
2) While pressing the plunger in the direction of arrow Ⓐ push the outer tray in the direction of arrow Ⓑ. (The tray at the front will be pushed out slightly in this condition.)
3) Pull out the tray from the front.

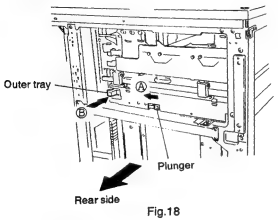



Fig.18

### 3.11 REMOVAL OF TRAY (L2)

1) Remove the ten screws ① and ② and remove the park stopper plate in the directions of arrows Ⓐ and Ⓒ.

**Note** : Use a magnetic driver, etc. so that the screws do not drop inside the unit.

2) Remove the tray (L2) in the direction of arrow Ⓑ.

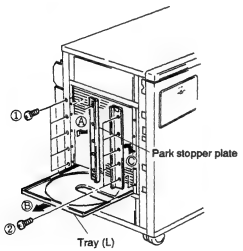



Fig. 19

### 3.12 CHECKING THE CLD PLAYER

1) Remove the player from the unit as shown in the figure below and place it on the unit.
2) The unit can be operated by removing the relay boards SCNS and SCNP from the player and connecting the connector from the unit.

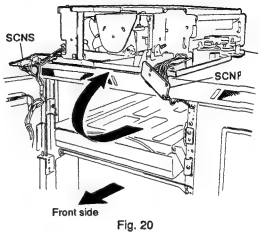



Fig. 20

3) Remove the two screws ① and open the board (VDEM unit).
4) Remove the three screws ② and remove the wiring stopper binding the cables.
5) Pull out the two boards (VDEM, FTSB).

**Note** : When returning the two boards to their original positions after checking, secure the cables, etc. properly. Also fold the three flat cables between VDEM and FTSB into the product properly.
(To prevent the tray from being hit.)

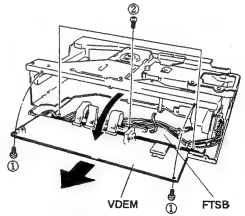



Fig. 21

# 4. EXPLODED VIEWS, PACKING AND PARTS LIST

**NOTES:**

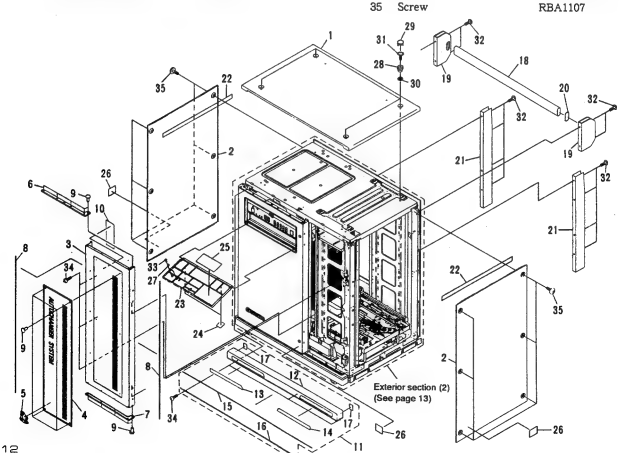
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- Screws adjacent to ▼ mark on the product are used for disassembly.

## 4.1 EXTERIOR SECTION (1)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Top plate | RMM1005 |
| | 2 | Side panel | RNA1590 |
| | 3 | Front door (R) assembly | RXA1494 |
| | 4 | Graphic plate | RAH2091 |
| | 5 | Karaoke-bird seal | RAX1005 |
| | 6 | Door mold (RT) | RAP1016 |
| | 7 | Door mold (RU) | RAP1017 |
| | 8 | Packing seal (D) | REB1205 |
| | 9 | Rivet (plastic) | RBM – 003 |
| | 10 | Service guide | RRW1107 |
| | 11 | Upper panel assembly (KUC type) | RXX1583 |
| | | Upper panel assembly (SEM type) | RXX1585 |
| NSP | 12 | Upper panel | RNT1169 |
| | 13 | Mirror seal (L) (KUC type) | RAX1003 |
| | | Gray seal (L) (SEM type) | RAX1007 |
| | 14 | Mirror seal (R) (KUC type) | RAX1004 |
| | | Gray seal (R) (SEM type) | RAX1008 |
| | 15 | Silver tape (2.5) | RAX1006 |

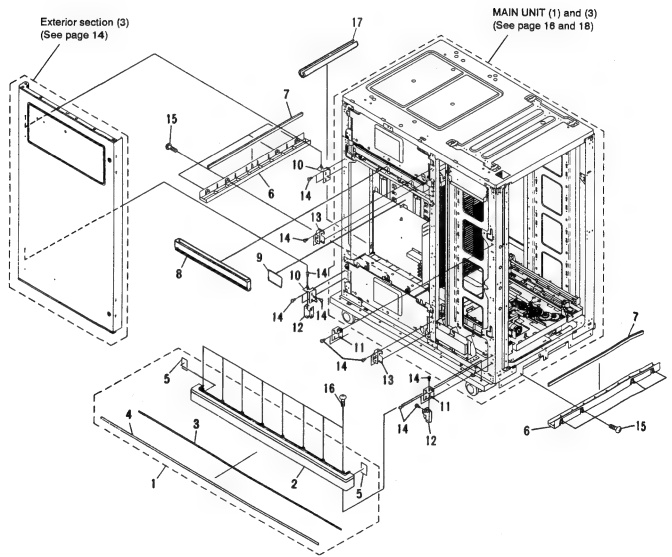
| Mark | No. | Description | Part No. |
|---|---|---|---|
| NSP | 16 | Packing seal (E) | REB1208 |
| NSP | 17 | Damp sheet | VEX1021 |
| NSP | 18 | Handle pipe | RLA1178 |
| NSP | 19 | Metal fittings of handle | RNE1574 |
| NSP | 20 | Cushion | DEB1016 |
| NSP | 21 | Protector | RNE1577 |
| NSP | 22 | Packing seal (B) | REB1203 |
| | 23 | Sealing door | RNK1842 |
| | 24 | Plate | REC1179 |
| | 25 | Guide label | RRW1117 |
| NSP | 26 | Caution label (KUC type) | VRW – 235 |
| | 27 | Door lens | RNK1838 |
| NSP | 28 | Holder A | DMA – 105 |
| NSP | 29 | Holder B | DMA – 106 |
| | 30 | Washer | DNH – 104 |
| | 31 | Screw | BMZ60P140FMC |
| | 32 | Screw | AMZ60P100FZK |
| | 33 | Screw | BBZ20P060FZK |
| | 34 | Screw | BBZ30P080FMC |
| | 35 | Screw | RBA1107 |



## 4.2 EXTERIOR SECTION (2)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Front skirt assembly | RXX1584 |
| NSP | 2 | Front skirt | RNT1170 |
| NSP | 3 | Packing seal (E) | REB1208 |
| | 4 | Silver tape (6.5) | RAX1002 |
| NSP | 5 | Damp sheet | VEX1021 |
| | 6 | Side skirt | RNK1840 |
| | 7 | Packing seal (A) | REB1202 |
| | 8 | Tray name plate | RNK1841 |
| NSP | 9 | Label | VRW – 348 |
| NSP | 10 | Door hinge (L) assembly | RXA1495 |
| NSP | 11 | Door hinge (R) assembly | RXA1496 |
| NSP | 12 | Hinge reinforced plate | RNE1542 |
| NSP | 13 | Door holder assembly | RXA1497 |
| | 14 | Screw | BBZ30P080FMC |
| | 15 | Screw | BBZ40P080FZK |
| | 16 | Screw | BMZ40P350FZK |
| NSP | 17 | Protect tube | REC1181 |

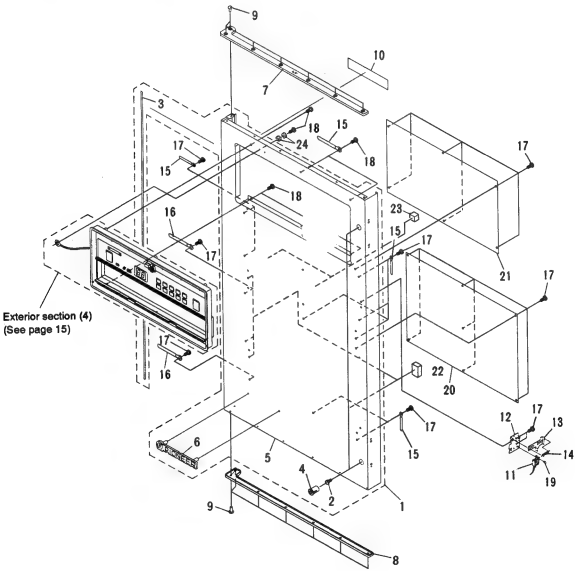


## 4.3 EXTERIOR SECTION (3)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Front door (L) assembly (KUC type) | RXX1549 |
| | | Front door (L) assembly (SEM type) | RXX1550 |
| | 2 | Screw | RBA1103 |
| | 3 | Packing seal (D) | REB1205 |
| | 4 | Hole escutcheon | RNK1839 |
| NSP | 5 | Front door (L) assembly (KUC type) | RXA1493 |
| NSP | | Front door (L) assembly (SEM type) | RXA1507 |
| NSP | 6 | Badge | SAM – 451 |
| | 7 | Door mold (LT) | RAP1014 |
| | 8 | Door mold (LU) | RAP1015 |
| | 9 | Jet (plastic) | RBM – 003 |
| NSP | 10 | Label (KUC type) | ORW1069 |

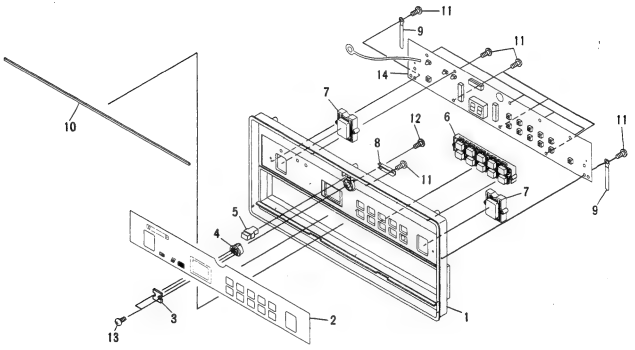
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 11 | Lever switch | DSK1003 |
| NSP | 12 | Door switch holder | RNE1550 |
| NSP | 13 | Door switch arm | RNE1551 |
| | 14 | Door switch spring | RBH1327 |
| | 15 | Cord clamper | RNH – 184 |
| NSP | 16 | Cord clamper | DNF1128 |
| | 17 | Screw | BPZ30P080FMC |
| | 18 | Screw | BPZ30P080FCU |
| | 19 | Screw | BMZ26P060FMC |
| ⊙ | 20 | VAPB unit (KUC type) | RWG1006 |
| ⊙ | | VAPB unit (SEM type) | RWG1007 |
| ⊙ | 21 | SYSB unit | RWZ2769 |
| NSP | 22 | Rubber spacer (A) | REB1057 |
| NSP | 23 | Rubber spacer | REB1124 |
| | 24 | Washer | WB30FMC |



## 4.4 EXTERIOR SECTION (4)

### Parts List

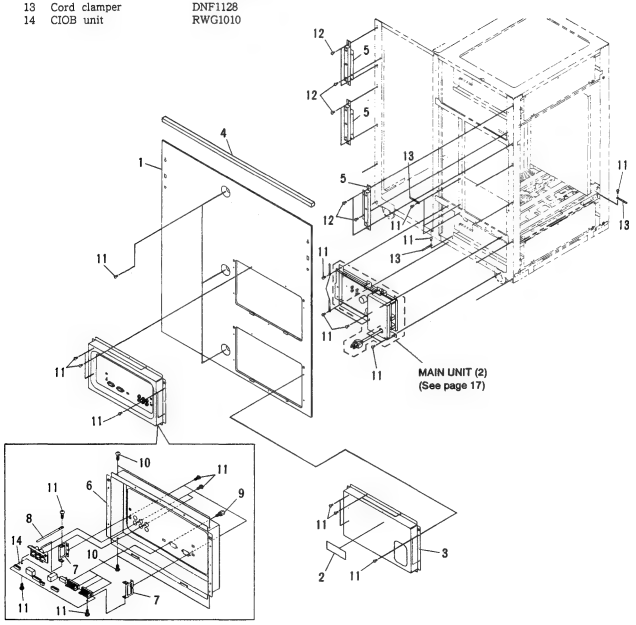
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Operation panel | RNT1144 |
| | 2 | Operation plate | RAH2093 |
| | 3 | Door lock plate | RNE1564 |
| | 4 | Door lock holder | RNK1852 |
| | 5 | Latch | DXA1356 |
| | 6 | Ten key | RAC1723 |
| | 7 | One key | RAC1724 |
| | 8 | Door lock spring | RBK1047 |
| | 9 | Cord clamper | RNH – 184 |
| | 10 | Door packing | REB1206 |
| | 11 | Screw | BPZ30P080FCU |
| | 12 | Screw | IPZ30P080FMC |
| | 13 | Screw | BBZ20P060FZK |
| ⊙ | 14 | DISP unit | RWZ2770 |



## 4.5 MAIN UNIT (1)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| NSP | 1 | Rear panel | RNA1591 |
| NSP | 2 | Caution label (F) (SEM type) | VRW – 328 |
| NSP | 3 | Power cover (KUC type) | RNA1594 |
| NSP | | Powerr cover (SEM type) | RNA1608 |
| NSP | 4 | Packing seal (C) | REB1204 |
| NSP | 5 | Rear support | RNE1533 |
| NSP | 6 | Terminal cover | RNA1593 |
| NSP | 7 | PCB holder | VNE1741 |
| | 8 | Cord clamper | RNH – 184 |
| | 9 | Joint bolt | DBA1038 |
| | 10 | Screw | BBZ30P060FZK |
| | 11 | Screw | BBZ30P080FMC |
| | 12 | Screw | BBZ40P080FZK |
| | 13 | Cord clamper | DNF1128 |
| ⊙ | 14 | CIOB unit | RWG1010 |

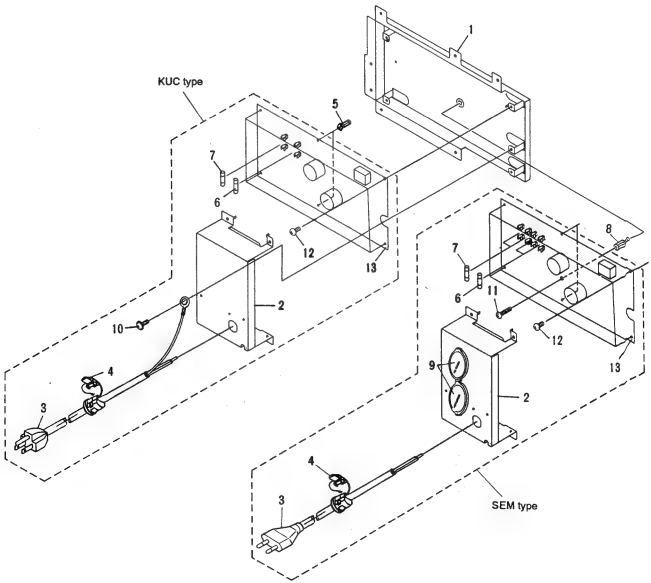


## 4.6 MAIN UNIT (2)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| NSP | 1 | AC board holder | RNE1534 |
| NSP | 2 | AC cord holder (KUC type) | RNA1592 |
| NSP | | AC cord holder (SEM type) | RNA1607 |
| | 3 | Power cord with plug (KUC type) | DDG1025 |
| | | Power cord with plug (SEM type) | RDG1021 |
| | 4 | AC cord stopper (KUC type) | VEC – 201 |
| | | Strain relief (SEM type) | CM – 22B |
| NSP | 5 | PCB support | VEC1266 |

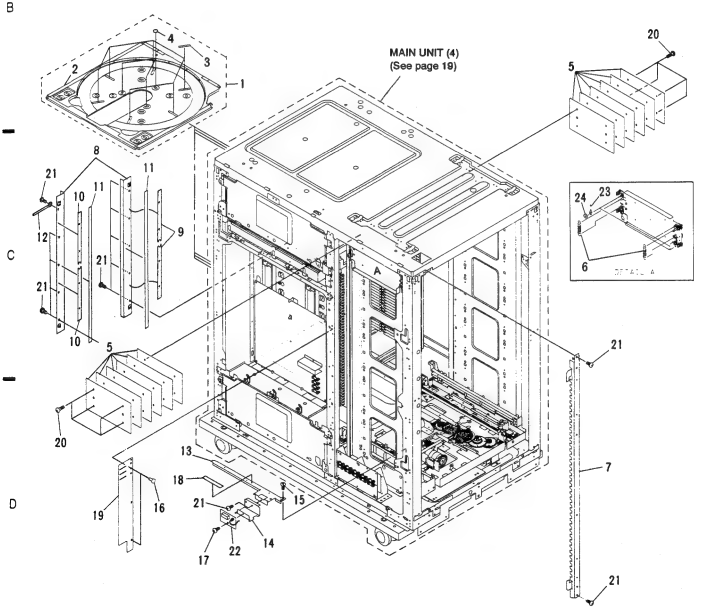
| Mark | No. | Description | Part No. |
|---|---|---|---|
| ⚠ | 6 | FU101 (500mA) Fuse (KUC type) | REC – 077 |
| ⚠ | | FU101, 102 (T160mA) Fuse (SEM type) | REK – 092 |
| ⚠ | 7 | FU103 (1.6A) Fuse (KUC type) | REK – 074 |
| ⚠ | | FU103, 104 (T500mA) Fuse (SEM type) | REK – 097 |
| | 8 | Screw grommet (SEM type) | DEC1013 |
| | 9 | Voltage selector (SEM type) | AKX – 507 |
| | 10 | Screw | PMB40P08[illegible]MC |
| | 11 | Screw | BPZ30P250[illegible]MC |
| | 12 | Screw | BBZ30P080[illegible]MC |
| NSP | 13 | PSPB unit (KUC type) | RWZ2754 |
| NSP | | PSPB unit (SEM type) | RWZ2773 |



## 4.7 MAIN UNIT (3)

### Parts List

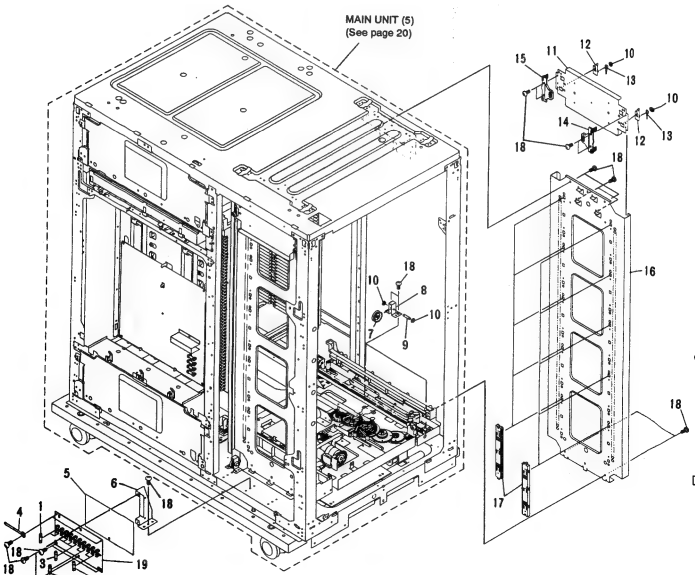
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Tray (L2) assembly | RXX1581 |
| NSP | 2 | Tray (L2) | RNK1853 |
| | 3 | Disc pad | REC1190 |
| | 4 | LD pad | VEC1472 |
| NSP | 5 | Balance weight | VNE1692 |
| | 6 | Wire spring | VBH1171 |
| NSP | 7 | Encode angle | VNE1689 |
| NSP | 8 | Park stopper plate | RNE1521 |
| NSP | 9 | Park spacer | REC1140 |
| | 10 | Park spacer (F) | REC1177 |
| NSP | 11 | Park cushion (B) | REB1211 |
| | 12 | Cord clamper | RNH – 184 |
| NSP | 13 | Front arm | VNE1720 |
| NSP | 14 | Indicator bracket | RNE1554 |
| | 15 | Rivet (plastic) | RBM – 003 |
| | 16 | Rivet (plastic) | VEC1178 |
| | 17 | Rivet (plastic) | RBM – 003 |
| NSP | 18 | Caution label | RRW1115 |
| NSP | 19 | Cable slit | REC1129 |
| | 20 | Screw | BBZ30P140FMC |
| | 21 | Screw | BBZ30P080FMC |
| ⊙ | 22 | INDB unit | RWZ2764 |
| | 23 | Wire assembly (C) | RXA1498 |
| | 24 | Washer | WT26D047D050 |



## 4.8 MAIN UNIT (4)

### Parts List

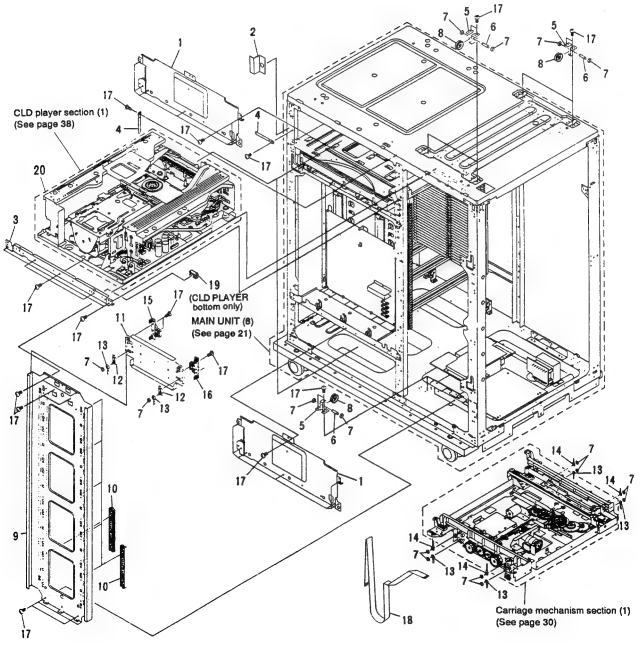
| Mark | No. | Description | Part No. |
|---|---|---|---|
| ⚠ | 1 | FU105, 106, 109, 110 (1.6A) Fuse (KUC type) | REK – 074 |
| ⚠ | | FU105, 106, 109, 110 (T1.6A) Fuse (SEM type) | REK – 102 |
| ⚠ | 2 | FU107, 108 (500mA) Fuse (KUC type) | REK – 077 |
| ⚠ | | FU107, 108 (T500mA) Fuse (SEM type) | REK – 097 |
| ⚠ | 3 | FU111 – 114 (3.15A) Fuse (KUC type) | REK – 083 |
| ⚠ | | FU111 – 114 (T3.15A) Fuse (SEM type) | REK – 105 |
| | 4 | Cord clamper | RNH – 184 |
| NSP | 5 | Fuse cover | REC1167 |
| NSP | 6 | Fuse board holder | RNE1529 |
| | 7 | Wire pulley | VNL1428 |
| NSP | 8 | Pulley holder | VNE1688 |
| NSP | 9 | Wire pulley shaft | VLL1412 |
| | 10 | Washer | WT26D047D050 |
| NSP | 11 | Weight holder assembly | VXA1714 |
| NSP | 12 | Wire hook assembly | VXA1715 |
| | 13 | Wire assembly (B) | VXA1717 |
| | 14 | Balancer guide (L) | VNL1429 |
| | 15 | Balancer guide (R) | VNL1430 |
| NSP | 16 | Side rail | VNE1686 |
| | 17 | Rack plate | VNL1427 |
| | 18 | Screw | BBZ30P080FMC |
| NSP | 19 | FUSB unit (KUC type) | RWZ2779 |
| NSP | | FUSB unit (SEM type) | RWZ2778 |



## 4.9 MAIN UNIT (5)

### Parts List

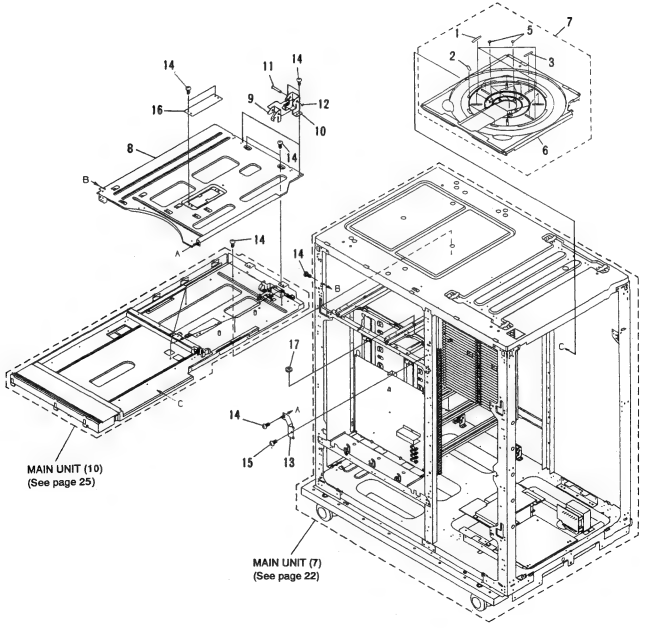
| Mark | No. | Description | Part No. |
|---|---|---|---|
| NSP | 1 | Shield plate | RNE1544 |
| NSP | 2 | Edge cover | REC1173 |
| NSP | 3 | PL stay | RNE1547 |
| | 4 | Cord clamper | RNH – 184 |
| NSP | 5 | Pulley holder | VNE1688 |
| NSP | 6 | Wire pulley shaft | VLL1412 |
| | 7 | Washer | WT26D047D050 |
| | 8 | Wire pulley | VNL1428 |
| NSP | 9 | Side rail | VNE1686 |
| | 10 | Rack plate | VNL1427 |
| NSP | 11 | Weight holder assembly | VXA1714 |
| NSP | 12 | Wire hook assembly | VXA1715 |
| | 13 | Wire asssembly (B) | VXA1717 |
| | 14 | Wire assembly (C) | RXA1498 |
| | 15 | Balancer guide (L) | VNL1429 |
| | 16 | Balancer guide (R) | VNL1430 |
| | 17 | Screw | BBZ30P080FMC |
| | 18 | Lead card (17P) | VDA1383 |
| NSP | 19 | Edging (B) (CLD PLAYER bottom only) | REC1099 |
| ⊙ | 20 | CLD player unit (KUC type) | RXX1545 |
| ⊙ | | CLD player unit (SEM type) | RXX1546 |



## 4.10 MAIN UNIT (6)

### Parts List

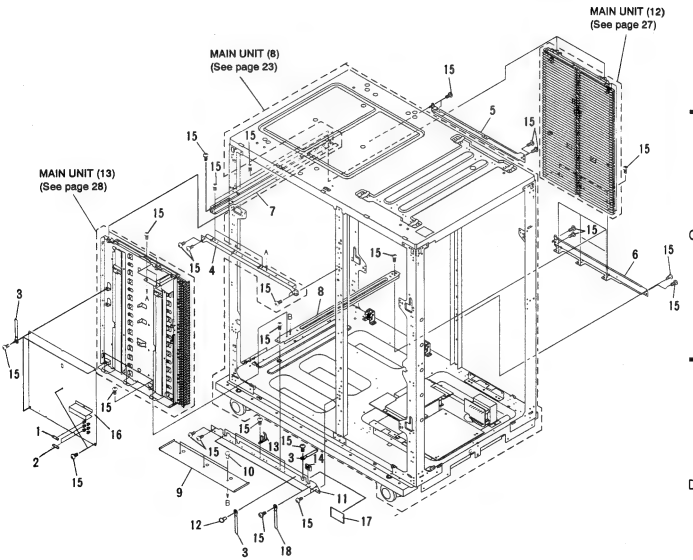
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Disc pad (L) | VEC1191 |
| | 2 | Disc pad (B) | VEC1379 |
| | 3 | Disc pad (C) | VEC1380 |
| | 4 | ..... | |
| | 5 | Rubber sheet (D) | VEB1131 |
| NSP | 6 | Tray (C) | RNK1821 |
| | 7 | Tray (C) assembly | RXX1587 |
| NSP | 8 | PL mount holder | RNE1545 |
| NSP | 9 | PL lock arm | RNE1548 |
| NSP | 10 | PL lock holder | RNE1549 |
| NSP | 11 | PL lock shaft | RLA1181 |
| | 12 | E ring | YE25FUC |
| NSP | 13 | Mechanism support | RNE1546 |
| | 14 | Screw | BBZ30P060FZK |
| | 15 | Screw | BBZ30P080FMC |
| NSP | 16 | DSNB unit | RWZ2433 |
| | 17 | Fiber washer | RBF1045 |



## 4.11 MAIN UNIT (7)

### Parts List

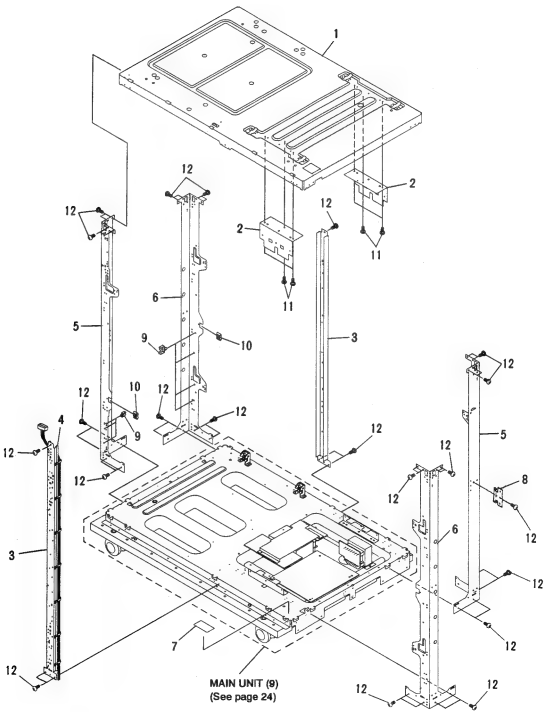
| Mark | No. | Description | Part No. |
|---|---|---|---|
| ⚠ | 1 | FU115 (2.5A) Fuse (KUC type) | REK – 082 |
| ⚠ | | FU115 (T1.6A) Fuse (SEM type) | REK – 102 |
| ⚠ | 2 | FU116, 117 (2.5A) Fuse (KUC type) | REK – 082 |
| ⚠ | | FU116, 117 (T1.6A) Fuse (SEM type) | REK – 102 |
| | 3 | Cord clamper | RNH – 184 |
| NSP | 4 | Front stay | VNE1701 |
| NSP | 5 | Rear stay (U) | VNE1702 |
| NSP | 6 | Rear stay (L) | VNE1703 |
| NSP | 7 | Support stay (U) | VNE1706 |
| NSP | 8 | Support stay (L) | RNE1525 |
| NSP | 9 | Protect sheet | REC1152 |
| | 10 | Rivet (plastic) | RBM – 003 |
| NSP | 11 | Front stay (L) | RNE1532 |
| | 12 | Rivet (plastic) | VEC – 179 |
| NSP | 13 | Wire clip | REC1155 |
| NSP | 14 | Edge guard (B) | DEC1144 |
| | 15 | Screw | BBZ30P080FMC |
| ⊙ | 16 | CMEC unit (KUC type) | RWG1008 |
| ⊙ | | CMEC unit (SEM type) | RWG1009 |
| NSP | 17 | Protect sheet (B) | REC1183 |
| | 18 | Cord clamper | DNF1128 |



## 4.12 MAIN UNIT (8)

### Parts List

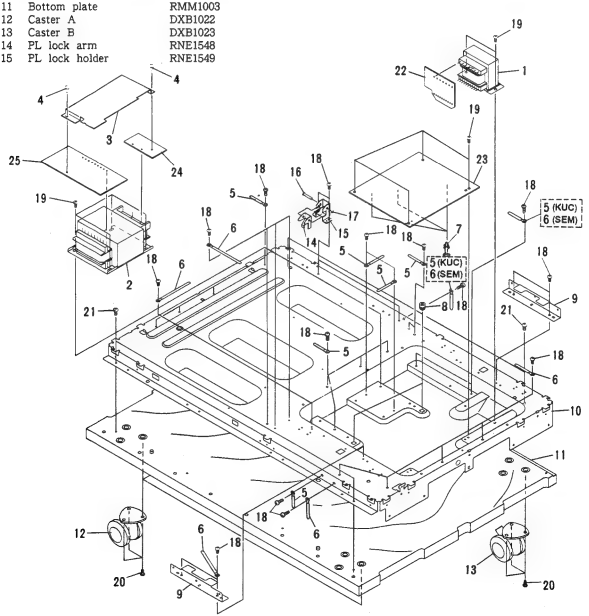
| Mark | No. | Description | Part No. |
|---|---|---|---|
| NSP | 1 | Upper chassis | RNB1078 |
| NSP | 2 | Upper bracket | RNE1526 |
| NSP | 3 | Center angle | VNE1700 |
| NSP | 4 | Edging (F) | REC1176 |
| NSP | 5 | Corner angle (A) | RNE1530 |
| NSP | 6 | Corner angle (B) | RNE1531 |
| | 7 | Fuse caution label (KUC type) | RRW – 111 |
| NSP | 8 | Stopper plate | RNE1575 |
| NSP | 9 | Wire clip (B) | VEC1381 |
| NSP | 10 | Edge guard (B) | DEC1144 |
| | 11 | Screw | BBZ30P060FZK |
| | 12 | Screw | BBZ30P080FMC |



## 4.13 MAIN UNIT (9)

### Parts List

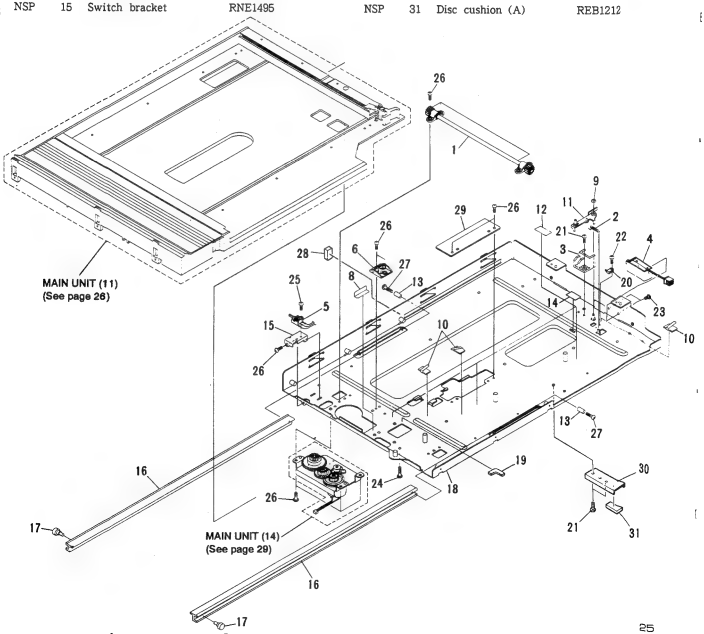
| Mark | No. | Description | Part No. |
|---|---|---|---|
| ⚠ | 1 | T101 SUB transformer (KUC type) | RTT1210 |
| ⚠ | | T101 SUB transformer (SEM type) | RTT1212 |
| ⚠ | 2 | T102 MAIN transformer (KUC type) | RTT1209 |
| ⚠ | | T102 MAIN transformer (SEM type) | RTT1211 |
| NSP | 3 | Transformer sheet | REC1157 |
| | 4 | Rivet (plastic) | RBM – 003 |
| | 5 | Cord clamper | RNH – 184 |
| NSP | 6 | Cord clamper | DNF1128 |
| NSP | 7 | Card spacer | REC1156 |
| NSP | 8 | PCB support | REC1105 |
| NSP | 9 | Side rail bracket | VNE1687 |
| NSP | 10 | Under chassis assembly | RXA1492 |
| NSP | 11 | Bottom plate | RMM1003 |
| | 12 | Caster A | DXB1022 |
| | 13 | Caster B | DXB1023 |
| NSP | 14 | PL lock arm | RNE1548 |
| NSP | 15 | PL lock holder | RNE1549 |
| NSP | 16 | PL lock shaft | RLA1181 |
| | 17 | E ring | YE25FUC |
| | 18 | Screw | BBZ30P080FMC |
| | 19 | Screw | BBZ40P080FZK |
| | 20 | Screw | PMA60P250FMC |
| | 21 | Screw | RBA1105 |
| NSP | 22 | SBTB unit (KUC type) | RWZ2756 |
| NSP | | SBTB unit (SEM type) | RWZ2775 |
| ⊙ | 23 | PSSB unit (KUC type) | RWZ2755 |
| ⊙ | | PSSB unit (SEM type) | RWZ2774 |
| NSP | 24 | MTPB unit (KUC type) | RWZ2757 |
| NSP | | MTPB unit (SEM type) | RWZ2776 |
| | 25 | MTSB unit (KUC type) | RWZ2758 |
| | | MTSB unit (SEM type) | RWZ2777 |



## 4.14 MAIN UNIT (10)

### Parts List

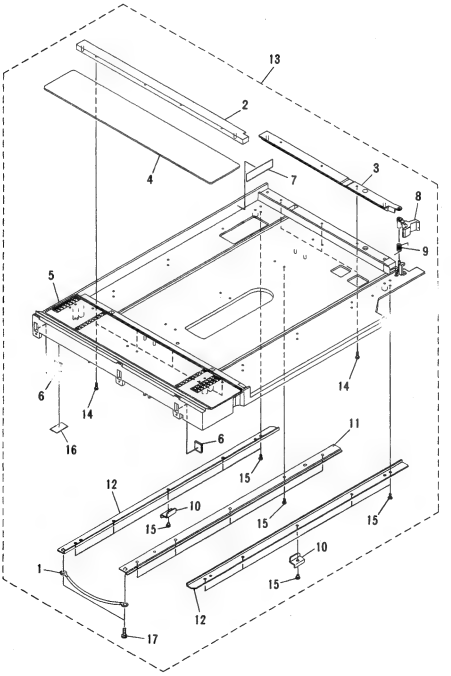
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Outer synchro gear assembly | VXA1726 |
| | 2 | Lock spring | RBH1310 |
| | 3 | Outer stopper | VNL1474 |
| | 4 | Solenoid | RXP1018 |
| | 5 | Lever switch | DSK1003 |
| | 6 | Outer guide | RNK1797 |
| | 7 | ····· | |
| | 8 | Gear cover (C) | REC1132 |
| | 9 | Washer | WT21D040D050 |
| | 10 | Cord keep | DNH1285 |
| NSP | 11 | Outer lock arm assembly | RXA1522 |
| NSP | 12 | Mechanism sheet | VEX1024 |
| | 13 | Outer collar | RLP1046 |
| NSP | 14 | Outer spacer | REC1175 |
| NSP | 15 | Switch bracket | RNE1495 |
| NSP | 16 | Slide rail | RNG1053 |
| NSP | 17 | Rail pin | RLA1175 |
| NSP | 18 | Outer base assembly | RXA1523 |
| | 19 | Edge guard | DEC1317 |
| | 20 | Slide switch | VSK1008 |
| | 21 | Screw | BBZ30P080FMC |
| | 22 | Screw | PMZ20P060FMC |
| | 23 | Screw | BMZ26P030FMC |
| | 24 | Screw | BCZ30P120FMC |
| | 25 | Screw | BBZ26P060FMC |
| | 26 | Screw | BBZ30P060FZK |
| | 27 | Screw | PMZ30P120FMC |
| NSP | 28 | Outer cushion (B) | REC1124 |
| NSP | 29 | DSNA unit | RWZ2432 |
| NSP | 30 | Disc guard (A) | RNE1578 |
| NSP | 31 | Disc cushion (A) | REB1212 |



## 4.15 MAIN UNIT (11)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| NSP | 1 | Earth lead unit | XDF – 504 |
| | 2 | Tray cover (F) | RNL1002 |
| | 3 | Tray cover (R) | RNL1003 |
| | 4 | Tray caution plate | RAH2105 |
| NSP | 5 | Outer tray | VNK1883 |
| NSP | 6 | Outer cushion (C) | REB1196 |
| NSP | 7 | Outer cushion (D) | REB1210 |
| | 8 | Outer stopper (R) | VNL1478 |
| | 9 | Stopper spring (R) | RBH1308 |
| NSP | 10 | Rail stopper | RNE1505 |
| NSP | 11 | Guide plate (A) | RNE1494 |
| NSP | 12 | Guide plate (P) | VNE1744 |
| | 13 | Outer tray assembly | RXX1558 |
| | 14 | Screw | BBZ30P080FMC |
| | 15 | Screw | BPZ30P060FCU |
| | 16 | Mechanism sheet | VEX1024 |
| | 17 | Screw | BBZ30P080FZK |

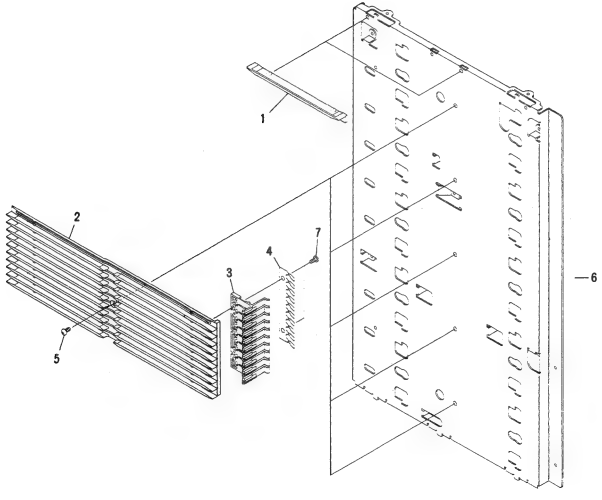


## 4.16 MAIN UNIT (12)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Park top guide | RNK1752 |
| | 2 | Park guide | VNL1418 |
| | 3 | Park stopper (R) | VNL1473 |
| | 4 | Park stopper spring | RBK1041 |
| | 5 | ..... | |

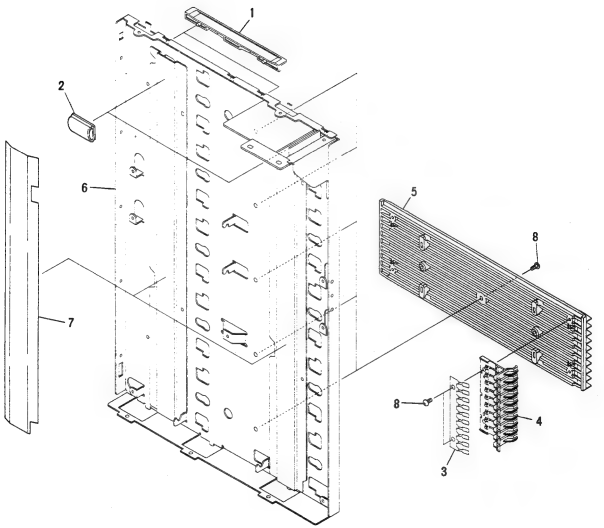
| Mark | No. | Description | Part No. |
|---|---|---|---|
| NSP | 6 | Side plate (R) assembly | RXA1457 |
| | 7 | Screw | BBZ30P080FMC |



## 4.17 MAIN UNIT (13)

### Parts List

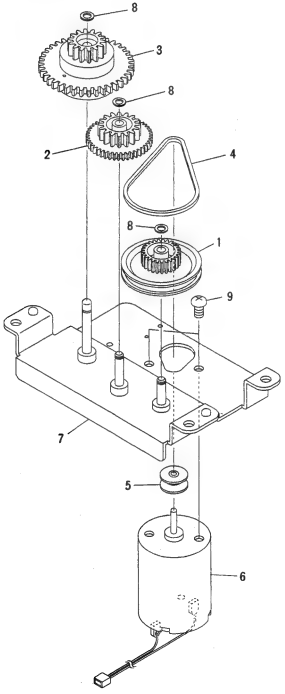
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Park top guide | RNK1752 |
| | 2 | Shell clip | DEC1184 |
| | 3 | Park stopper spring | RBK1041 |
| | 4 | Park stopper (F) | VNL1472 |
| | 5 | Park guide | VNL1418 |
| NSP | 6 | Side plate (F) assembly | RXA1473 |
| NSP | 7 | Insulation sheet (B) | REC1121 |
| | 8 | Screw | BBZ30P080FMC |



## 4.18 MAIN UNIT (14)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Outer gear (A) | VNL1475 |
| | 2 | Outer gear (B) | VNL1476 |
| | 3 | Outer gear (C) | VNL1477 |
| | 4 | Belt | PEB1138 |
| | 5 | Motor pulley | PNW1643 |
| | 6 | Loading motor | VXM1048 |
| NSP | 7 | Outer gear plate assembly | RXA1471 |
| | 8 | Washer | WT26D047D50 |
| | 9 | Screw | PMZ30P030FMC |



## 4.19 CARRIAGE MECHANISM SECTION (1)

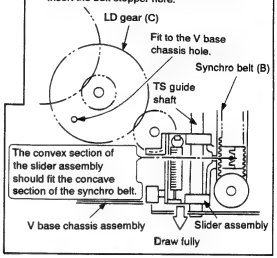
### Parts List

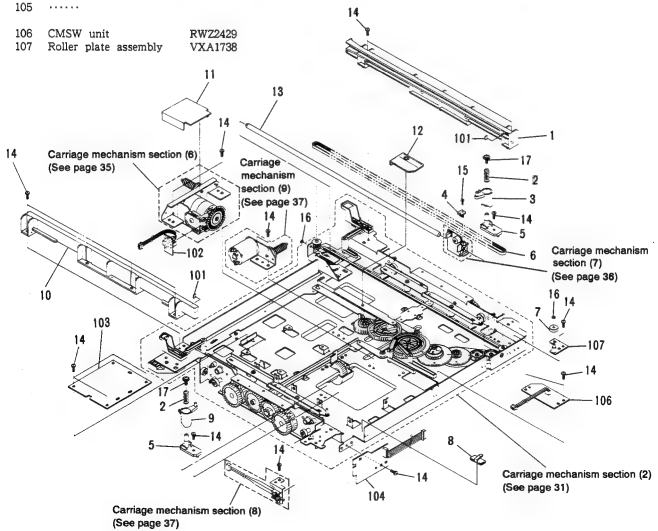
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Tray guide (R) | VNL1432 |
| | 2 | Pull arm spring | VBH1174 |
| | 3 | Pull arm (R) | VNL1468 |
| | 4 | Belt stopper | VNL1459 |
| | 5 | Pull arm base | VNL1466 |
| | 6 | Synchro belt (B) | VEB1171 |
| | 7 | Belt roller | RLP1045 |
| | 8 | Cord keep | REF1001 |
| | 9 | Pull arm (F) | VNL1467 |
| | 10 | Tray guide (F) | VNL1431 |
| | 11 | Gear cover (A) | REC1130 |
| | 12 | Gear cover (B) | REC1192 |
| | 13 | TS guide shaft | RLA1168 |
| | 14 | Screw | BBZ30P080FMC |
| | 15 | Screw | BBZ20P060FZK |
| | 16 | Washer | WT26D047D050 |
| | 17 | Screw | IBZ30P080FMC |
| NSP | 101 | Tray guide cushion | REC1117 |
| ⊙ | 102 | VMFG unit | RWZ2431 |
| ⊙ | 103 | CNNB unit | RWZ2427 |
| ⊙ | 104 | ENCB unit | RWZ2430 |
| | 105 | ····· | |
| ⊙ | 106 | CMSW unit | RWZ2429 |
| NSP | 107 | Roller plate assembly | VXA1738 |

**Attaching the Belt Stopper**

Attach the belt stopper as follows.

1) Draw the slider assembly in the direction arrow fully.
2) Check that the LD gear (C) fits the hole of the V base chassis assembly.
3) If both steps 1) and 2) above are satisfied, the convex section of the slider assembly should fit the concave section of the synchro belt. Insert the belt stopper here.

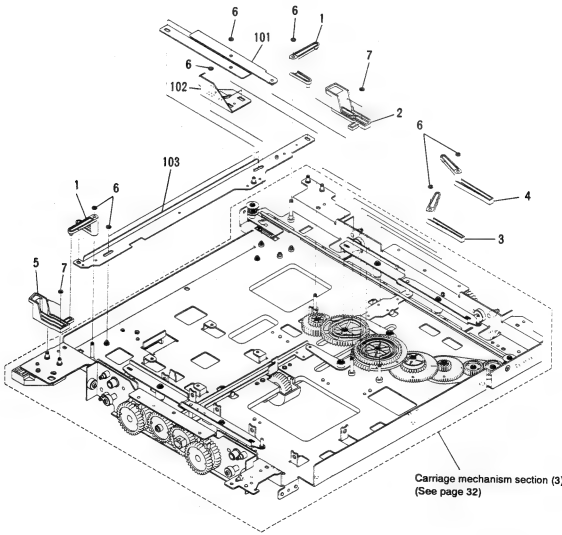


## 4.20 CARRIAGE MECHANISM SECTION (2)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | TS lever | VNL1461 |
| | 2 | TS plate (R) | VNL1463 |
| | 3 | Switch lever 1 | VNL1464 |
| | 4 | Switch lever 2 | VNL1465 |
| | 5 | TS plate (F) | VNL1462 |
| | 6 | Washer | WT26D047D050 |
| | 7 | E ring | YE25FUC |
| NSP | 101 | TS cam lever assembly | VXA1736 |
| NSP | 102 | Slider stopper | VNE1732 |
| NSP | 103 | TS joint plate assembly | VXA1737 |

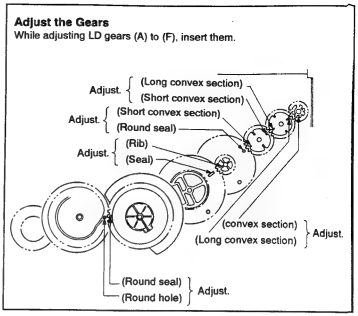


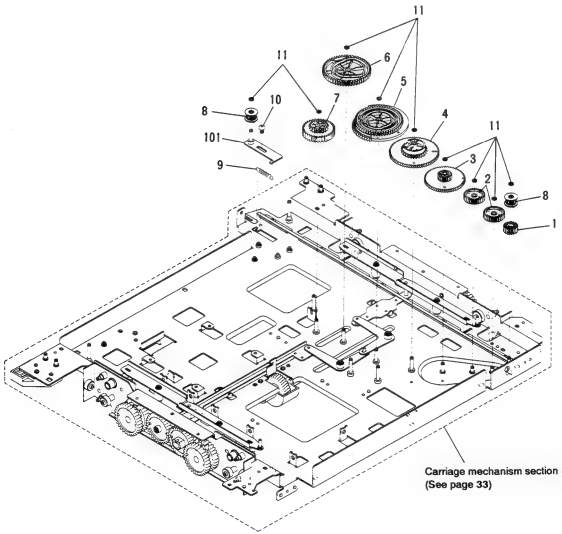

Carriage mechanism section (3)
(See page 32)

## 4.21 CARRIAGE MECHANISM SECTION (3)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | LD gear (A) | VNL1451 |
| | 2 | LD gear (B) | VNL1452 |
| | 3 | LDgear (C) | VNL1453 |
| | 4 | LDgear (D) | VNL1454 |
| | 5 | LDgear (E) | VNL1455 |
| | 6 | LDgear (F) | VNL1456 |
| | 7 | LDgear (G) | VNL1457 |
| | 8 | LD pulley assembly | VXA1729 |
| | 9 | Pulley base spring | VBH1172 |
| | 10 | Screw | BBZ30P080FMC |
| | 11 | Washer | WT26D047D050 |
| NSP | 101 | Pulley base assembly | VXA1730 |



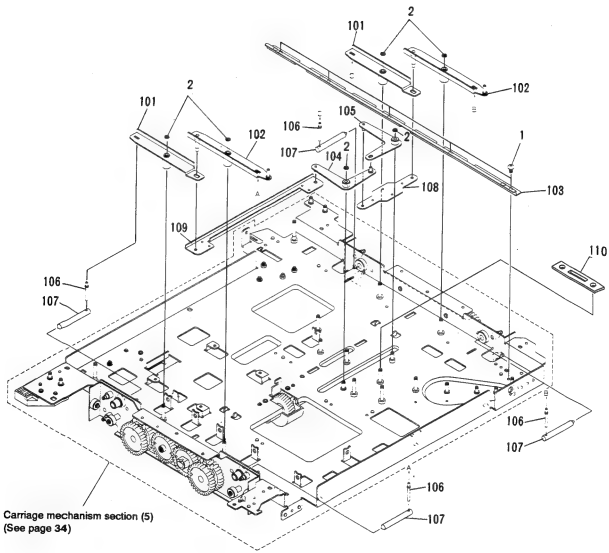

Carriage mechanism section (4)
(See page 33)

## 4.22 CARRIAGE MECHANISM SECTION (4)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Screw | BBZ30P060FZK |
| | 2 | Washer | WT26D047D050 |
| NSP | 101 | SP arm (L) assembly | VXA1734 |
| NSP | 102 | SP arm (R) assembly | VXA1735 |
| NSP | 103 | TS guide plate | VNE1722 |
| NSP | 104 | SP cam lever (F) assembly | VXA1732 |
| NSP | 105 | SP cam lever (R) assembly | VXA1733 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| NSP | 106 | Shaft pin | VLL1416 |
| NSP | 107 | Lock shaft | VLL1415 |
| NSP | 108 | SP joint plate (R) | VNE1727 |
| NSP | 109 | SP joint plate (F) | VNE1726 |
| NSP | 110 | LD spacer | RNE1582 |




Carriage mechanism section (5)
(See page 34)

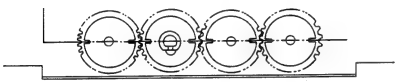
## 4.23 CARRIAGE MECHANISM SECTION (5)

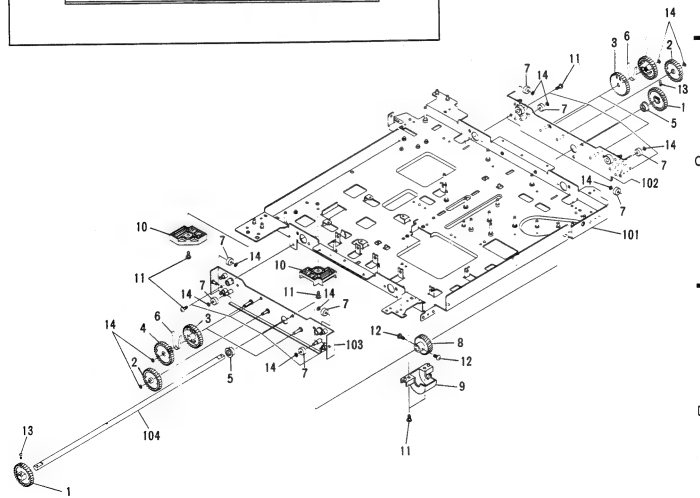
### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | UD gear (A) | VNL1446 |
| | 2 | UD gear (B) | VNL1447 |
| | 3 | UD gear (C) | VNL1448 |
| | 4 | UD gear (D) | VNL1449 |
| | 5 | UD shaft holder | VLL1414 |
| | 6 | UD spring plate | VBK1030 |
| | 7 | VB roller | RLP1043 |
| | 8 | UD worm wheel | VNL1445 |
| | 9 | UD thrust holder | VNL1441 |
| | 10 | Cable holder | VNL1440 |
| | 11 | Screw | BBZ30P080FMC |
| | 12 | Screw | PMH20P050FMC |
| | 13 | Screw | BMZ20P060FMC |
| | 14 | Washer | WT26D047D050 |
| NSP | 101 | V base chassis assembly | VXA1711 |
| NSP | 102 | Gear plate (R) assembly | VXA1713 |
| NSP | 103 | Gear plate (F) assembly | VXA1712 |
| NSP | 104 | UD synchro shaft | VLL1413 |

**Adjusting the UD Gears**

Adjust so that the convex sections inside the UD gears become a horizontal line and insert.



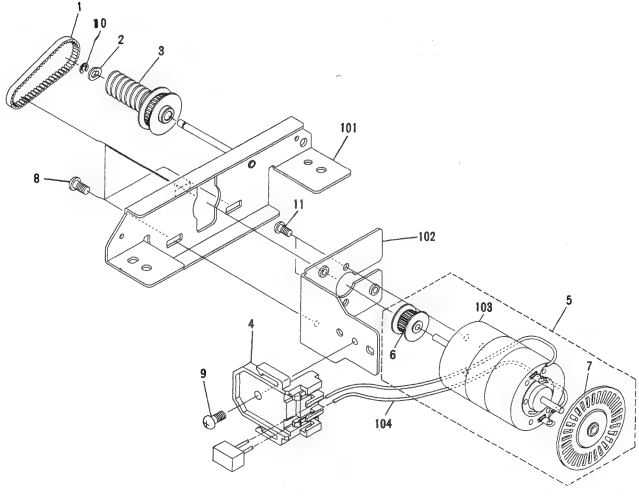


## 4.24 CARRIAGE MECHANISM SECTION (6)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Synchro belt (A) | VEB1170 |
| | 2 | Stainless washer | RBE1008 |
| | 3 | Worm pulley assembly | VXA1703 |
| | 4 | FG sensor holder | VNL1471 |
| | 5 | UD motor assembly | RXX1438 |
| | 6 | UDM pulley assembly | VXA1728 |
| | 7 | UD sensor disc | VNL1444 |
| | 8 | Screw | BMZ30P060FMC |
| | 9 | Screw | BBZ30P080FMC |
| | 10 | E ring | YE20FUC |
| | 11 | Screw | PMZ26P030FMC |

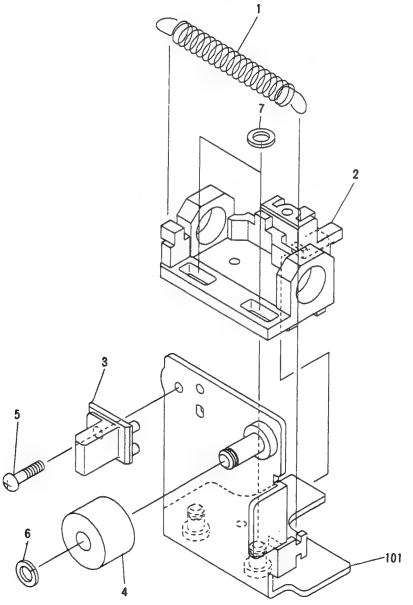
| Mark | No. | Description | Part No. |
|---|---|---|---|
| NSP | 101 | UDM bracket assembly | VXA1718 |
| NSP | 102 | UDM Plate | VNE1695 |
| NSP | 103 | UD motor | VXM1047 |
| NSP | 104 | Connector assembly 2P | RKP1427 |



## 4.25 CARRIAGE MECHANISM SECTION (7)

### Parts List

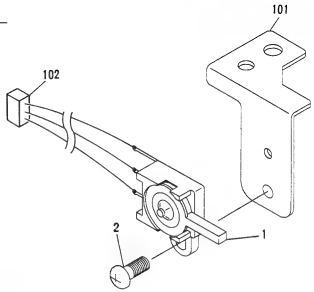
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Slider spring | VBH1173 |
| | 2 | Slide base | VNL1458 |
| | 3 | Slide hook | VNL1460 |
| | 4 | Slide roller | RLP1044 |
| | 5 | Screw | BBZ20P060FZK |
| | 6 | Washer | WT26D047D050 |
| | 7 | Washer | WT21D040D050 |
| NSP | 101 | Slide plate assembly | VXA1731 |



## 4.26 CARRIAGE MECHANISM SECTION (8)

### Parts List

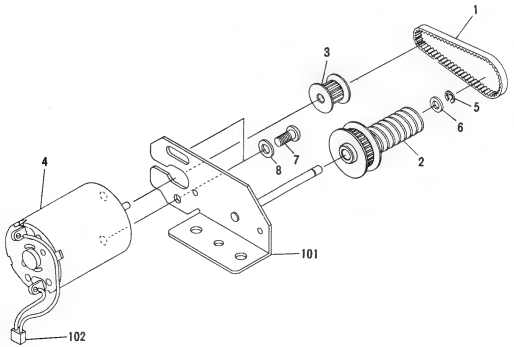
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Lever switch | DSK1003 |
| | 2 | Screw | BMZ26P060FMC |
| NSP | 101 | Switch bracket | VNE1735 |
| NSP | 102 | Connector assembly 3P | RKP1425 |




## 4.27 CARRIAGE MECHANISM SECTION (9)

### Parts List

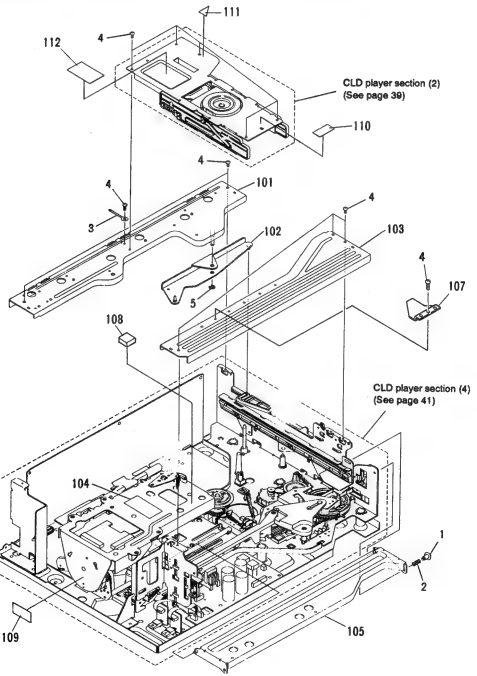
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Synchro belt (A) | VEB1170 |
| | 2 | Worm pulley assembly | VXA1703 |
| | 3 | Motor pulley | VNL1051 |
| | 4 | Loading motor | VXM1048 |
| | 5 | E ring | YE20FUC |
| | 6 | Stainless washer | RBE1008 |
| | 7 | Screw | PMZ30P030FMC |
| | 8 | Washer | WB30FMC |
| NSP | 101 | LDM bracket assembly | VXA1719 |
| NSP | 102 | Connector assembly 2P | RKP1426 |



## 4.28 CLD PLAYER SECTION (1)

### Parts List

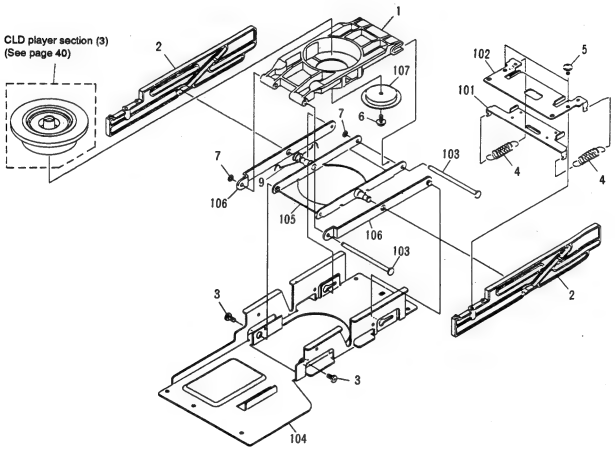
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Screw (B) | VBA1008 |
| | 2 | Arm spring | VBH1093 |
| | 3 | Cord clamper | VNF – 069 |
| | 4 | Screw | BBZ30P060FMC |
| | 5 | E ring | YE40FUC |
| NSP | 101 | Bridge (R) assembly | VXA1722 |
| NSP | 102 | Clamper arm assembly | VXA1721 |
| NSP | 103 | Bridge (L) | VNE1708 |
| NSP | 104 | Caution label | VRW1073 |
| NSP | 105 | Tray guide assembly | VXA1709 |
| | 106 | ..... | |
| NSP | 107 | Dump plate | RNE1590 |
| NSP | 108 | Dump cushion | VEC1602 |
| NSP | 109 | Caution label | RRW1104 |
| NSP | 110 | Caution label HE (SEM type) | PRW1233 |
| NSP | 111 | Caution label (G) (SEM type) | VRW – 329 |
| NSP | 112 | Caution label (SEM type) | VRW1094 |



## 4.29 CLD PLAYER SECTION (2)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Clamper holder | VNL1305 |
| | 2 | Clamp cam | VNL1527 |
| | 3 | Pivot screw | VBA1022 |
| | 4 | Limiter spring | VBH1168 |
| | 5 | Screw | IPZ30P060FMC |
| | 6 | Screw | IMZ30P060FMC |
| | 7 | Washer | WT26D060D050 |
| | 8 | ..... | |
| | 9 | Clamp torsion | RBH1321 |
| NSP | 101 | Limiter plate | VNE1551 |
| NSP | 102 | Slide plate | VNE1556 |
| NSP | 103 | Clamp shaft | VLL1299 |
| NSP | 104 | Center plate | VNE1582 |
| NSP | 105 | Lever (B) assembly | VXA1504 |
| NSP | 106 | Lever (A) assembly | VXA1503 |
| NSP | 107 | Clamper head | VNE1546 |

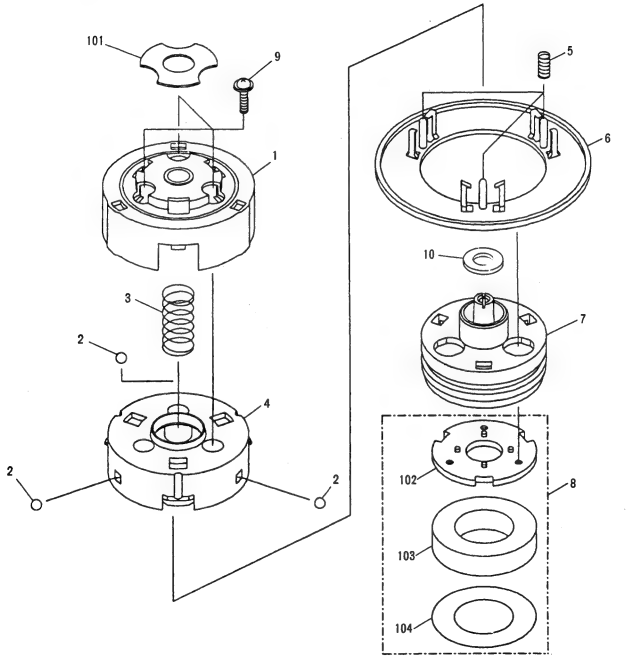


## 4.30 CLD PLAYER SECTION (3)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Clamper cover | VNL1363 |
| | 2 | Steel ball | VNX1006 |
| | 3 | Centering spring (B) | VBH1130 |
| | 4 | Clamper base | VNL1364 |
| | 5 | Clamper spring | VBH1153 |
| | 6 | Disc clamper | VNL1362 |
| | 7 | Centering hub (B) | VNL1435 |
| | 8 | Magnet assembly – S | VXX1475 |
| | 9 | Screw | AMZ20P040FMC |
| | 10 | Washer | WA60F115M160 |

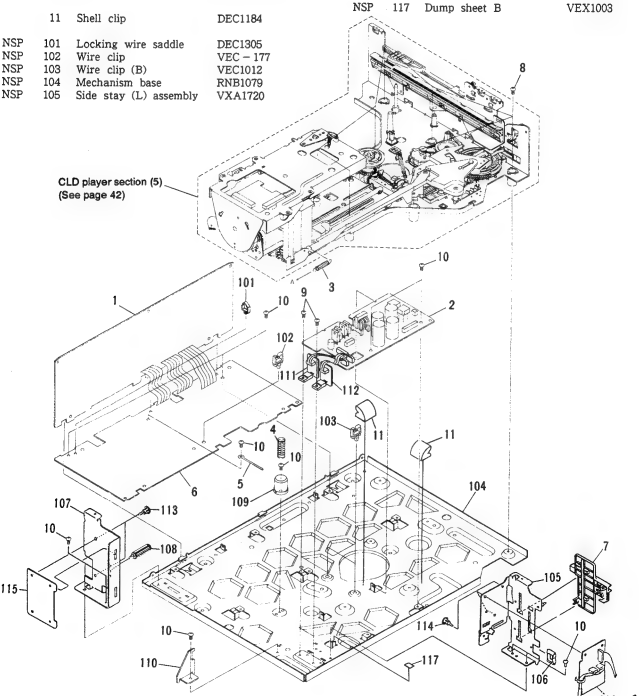
| Mark | No. | Description | Part No. |
|---|---|---|---|
| NSP | 101 | Rubber cushion (A) | VEB1146 |
| NSP | 102 | Clamper plate | VNE1549 |
| NSP | 103 | Magnet | VMG1010 |
| NSP | 104 | Gap sheet | VEC1561 |



## 4.31 CLD PLAYER SECTION (4)

### Parts List

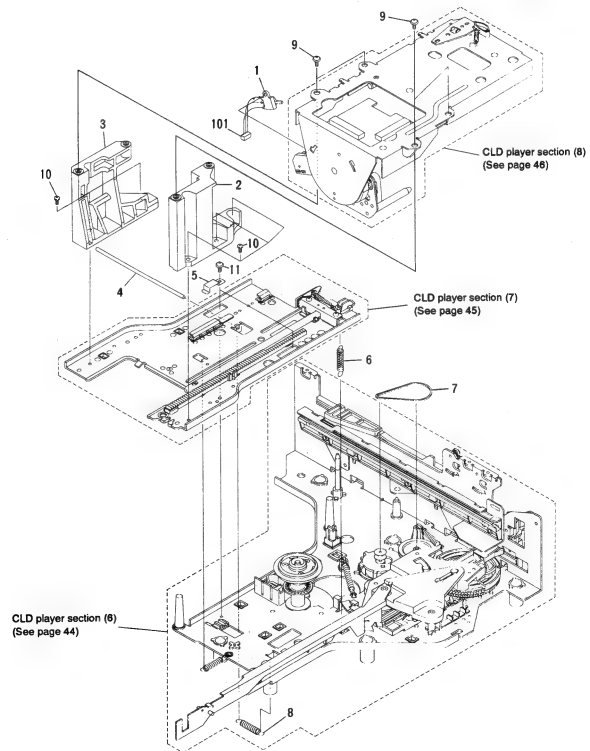
| Mark | No. | Description | Part No. |
|---|---|---|---|
| ⊙ | 1 | VDEM unit (KUC type) | RWZ2751 |
| ⊙ | | VDEM unit (SEM type) | RWZ2766 |
| NSP | 2 | SPDB unit | RWZ2745 |
| | 3 | TB lock spring (C) | VBH1177 |
| | 4 | Base spring | VBH1145 |
| | 5 | Cord clamper | DNF1128 |
| ⊙ | 6 | FTSB unit (KUC type) | RWZ2750 |
| ⊙ | | FTSB unit (SEM type) | RWZ2765 |
| | 7 | Slide rail (C) | VNL1424 |
| | 8 | Screw | IBZ30P080FMC |
| | 9 | Screw | BBZ30P080FMC |
| | 10 | Screw | BBZ30P060FMC |
| | 11 | Shell clip | DEC1184 |
| NSP | 101 | Locking wire saddle | DEC1305 |
| NSP | 102 | Wire clip | VEC − 177 |
| NSP | 103 | Wire clip (B) | VEC1012 |
| NSP | 104 | Mechanism base | RNB1079 |
| NSP | 105 | Side stay (L) assembly | VXA1720 |
| NSP | 106 | Edge guard (B) | DEC1144 |
| NSP | 107 | Side stay (R) | VNE1712 |
| NSP | 108 | PCB post (29) | DEC1390 |
| NSP | 109 | Spring guide | VNL1343 |
| NSP | 110 | TB lock (A) | VNE1713 |
| NSP | 111 | REGA unit | RWZ2746 |
| NSP | 112 | REGB unit | RWZ2747 |
| NSP | 113 | PCB holder | PNW1706 |
| NSP | 114 | PCB holder | PNW2029 |
| NSP | 115 | SCNS unit | RWZ2748 |
| NSP | 116 | SCNP unit | RWZ2749 |
| NSP | 117 | Dump sheet B | VEX1003 |



## 4.32 CLD PLAYER SECTION (5)

### Parts List

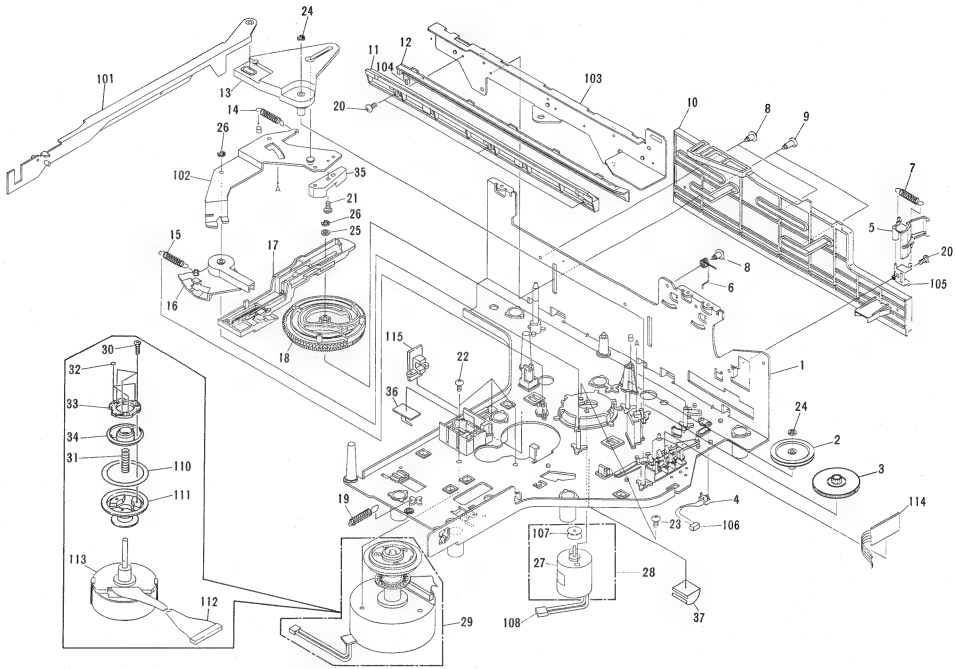
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Lever switch | DSK1003 |
| | 2 | Post (L) | VNL1415 |
| | 3 | Post (R) | VNL1416 |
| | 4 | Tilt shaft | VLL1326 |
| | 5 | Plate spring | VBK1013 |
| | 6 | Tilt spring | VBH1146 |
| | 7 | Belt | PEB1013 |
| | 8 | Thrust spring | VBH1163 |
| | 9 | Screw | IPZ30P100FCU |
| | 10 | Screw | IBZ30P100FMC |
| | 11 | Screw | ABZ26P050FMC |
| NSP | 101 | Connector assembly 3P | RKP1440 |



## 4.33 CLD PLAYER SECTION (6)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| ⊙ | 1 | Chassis assembly | VXA1704 |
| | 2 | Gear pulley | VNL1249 |
| | 3 | 2 step gear | VNL1326 |
| | 4 | Push switch | DSG1014 |
| | 5 | Tray lock (B) | VNL1426 |
| | 6 | Slide cam spring | VBH1180 |
| | 7 | Tray lock spring (B) | VBH1175 |
| | 8 | Screw (B) | VBA1008 |
| | 9 | Screw (C) | VBA1015 |
| | 10 | Slide cam | VNL1420 |
| | 11 | Slide rail (A) | VNL1422 |
| | 12 | Slide rail (B) | VNL1423 |
| | 13 | TB lock (D) | VNL1433 |
| | 14 | TB lockspring (F) | VBH1178 |
| | 15 | Tilt cam spring | VBH1176 |
| | 16 | Tilt cam | VNL1421 |
| | 17 | Spring slanting cam | VNL1316 |
| | 18 | Cam gear | VNL1350 |
| | 19 | Radial spring | VBH1164 |
| | 20 | Screw | BMZ26P060FMC |
| | 21 | Screw | BMZ26P040FMC |
| | 22 | Screw | PMA30P050FCU |
| | 23 | Screw | PMZ30P040FCU |
| | 24 | Washer | WT26D047D025 |
| | 25 | Washer | WA32N080W050 |
| | 26 | E ring | YE23FUC |
| | 27 | Loading motor | VXM1048 |
| | 28 | Loading motor assembly | RXX1524 |
| | 29 | Spindle motor assembly | RXX1544 |
| | 30 | Screw | CBZ20P080FMC |
| | 31 | Centering spring | VBH1024 |
| | 32 | Sheet | VEB1194 |
| | 33 | Yoke plate A | VNE1835 |
| | 34 | Centering hub (A) | VNT1020 |
| | 35 | TB lock (E) | VNL1434 |
| | 36 | Cord keep | DNH1285 |
| | 37 | Shell clip | DEC1184 |
| NSP | 101 | TB lock (C) assembly | VXA1723 |
| NSP | 102 | TB lock (F) assembly | VXA1724 |
| NSP | 103 | Slide plate | VNE1717 |
| NSP | 104 | Slide rail cushion | REC1113 |
| NSP | 105 | Lock holder assembly | VXA1710 |
| NSP | 106 | Connector assembly 2P | RKP1438 |
| NSP | 107 | Motor pulley | VLL1176 |
| NSP | 108 | Connector assembly 2P | RKP1437 |
| | 109 | ····· | |
| NSP | 110 | Rubber sheet | VEB1035 |
| NSP | 111 | Turn table assembly | RXA1519 |
| NSP | 112 | Connector assembly 11P | RKP1513 |
| | 113 | Spindle motor | RXM1056 |
| NSP | 114 | MSWB unit (KUC type) | RWZ2753 |
| NSP | | MSWB unit (SEM type) | RWZ2768 |
| NSP | 115 | SPFG unit (KUC type) | RWZ2752 |
| NSP | | SPFG unit (SEM type) | RWZ2767 |

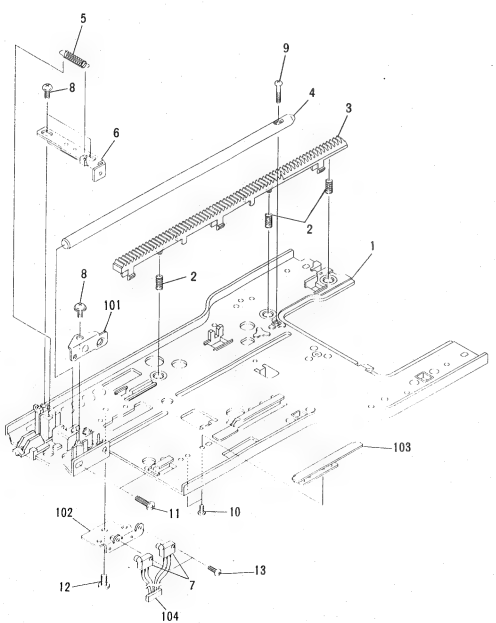


## 4.34 CLD PLAYER SECTION (7)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| ⊙ | 1 | Tilt base (lower) assembly | VXA1798 |
| | 2 | Rack spring | VBH1133 |
| | 3 | Rack gear (lower) | VNL1346 |
| | 4 | Carriage shaft (lower) | VLL1325 |
| | 5 | S plate spring | VBH1149 |
| | 6 | Shaft plate (lower) assembly | VXA1626 |
| | 7 | Slide switch | OSH1001 |
| | 8 | Screw | IPZ20P080FMC |
| | 9 | Screw | PPZ20P120FMC |
| | 10 | Screw | PMZ20P030FMC |
| | 11 | Screw | BMZ26P100FMC |
| | 12 | Screw | BBZ30P060FCC |
| | 13 | Screw | PMZ20P060FMC |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| NSP | 101 | S plate clamper | VNE1621 |
| NSP | 102 | SW holder | VNE1620 |
| NSP | 103 | Roller shaft holder plate | VNE1666 |
| NSP | 104 | Connector assembly 4P | RKP1439 |



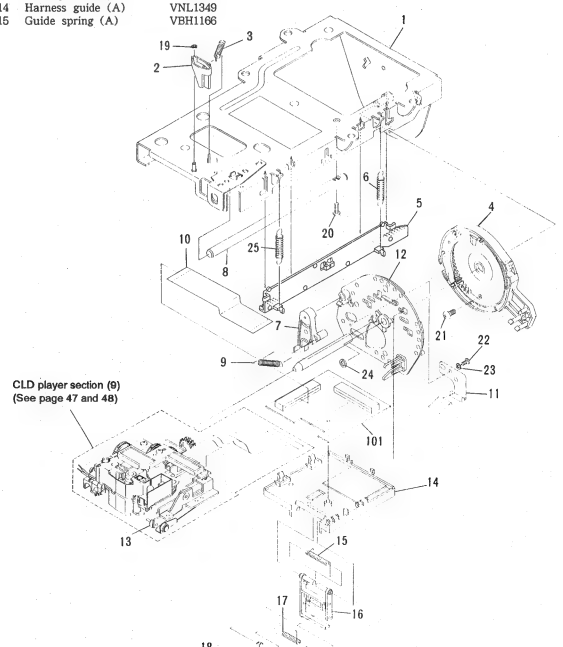



## 4.35 CLD PLAYER SECTION (8)

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Tilt base (upper) assembly | VXA1808 |
| | 2 | SW lever | VNL1359 |
| | 3 | SW lever spring | VBH1150 |
| | 4 | Internal gear assembly | VXA1903 |
| | 5 | Rack gear (upper) | VNL1417 |
| | 6 | Rack spring (upper) | VBH1179 |
| | 7 | Lock lever | VNL1351 |
| | 8 | Carriage shaft (upper) | VLL1324 |
| | 9 | Lever spring | RBH1323 |
| | 10 | Flexible cable (22P) | RDD1236 |
| | 11 | Lock plate | VBK1026 |
| ⊙ | 12 | R plate assembly | VXA1579 |
| ⊙ | 13 | Carriage assebly | VWT1079 |
| | 14 | Harness guide (A) | VNL1349 |
| | 15 | Guide spring (A) | VBH1166 |

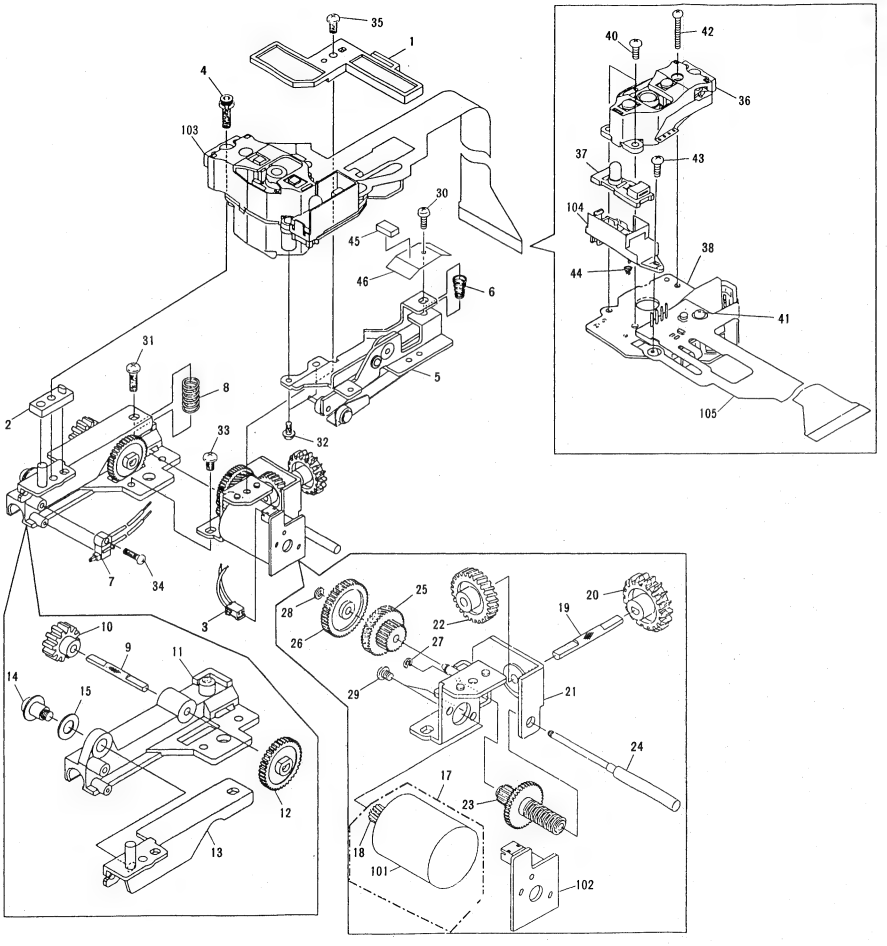
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 16 | Harness guide (B) | VNL1408 |
| | 17 | Guide spring (B) | VBH1155 |
| | 18 | Harness guide (C) | VNL1361 |
| | 19 | Washer | WT16D032D025 |
| | 20 | Screw | PMZ20P120FMC |
| | 21 | Screw | BBZ26P050FCC |
| | 22 | Screw | IBZ20P040FZK |
| | 23 | Washer | WB20FMC |
| | 24 | Wahser | WT36D072D050 |
| | 25 | Rack spring (IN) | RBH1322 |
| NSP | 101 | CNNB assembly | VWG1194 |



## 4.36 CLD PLAYER SECTION (9)

### Parts List

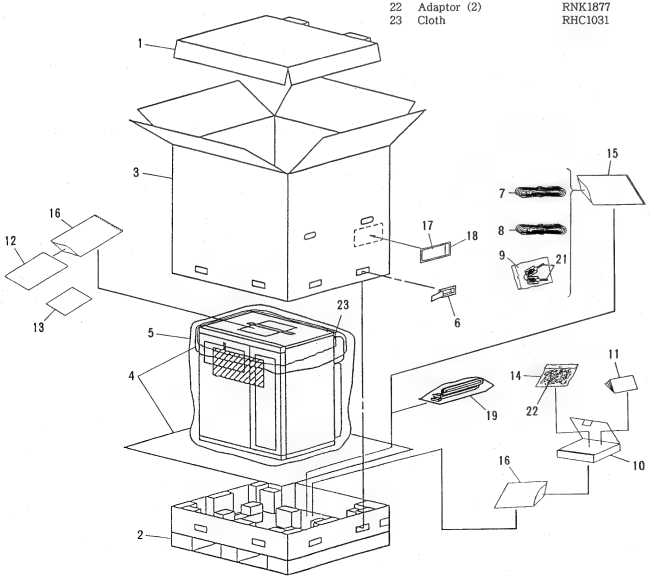
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Flexible holder | VNL1358 |
| | 2 | PU base | VNT1037 |
| | 3 | Housing assembly (1.5MP2P) | VKP1852 |
| | 4 | Bolt 2.6x10 | VLL1192 |
| | 5 | TAN base assembly | VXA1752 |
| | 6 | TAN spring | VBH1151 |
| | 7 | Slide switch (CD, B INSIDE) | VSK1008 |
| | 8 | TRKG spring | VBH1204 |
| | 9 | SL shaft (B) | VLL1334 |
| | 10 | Gear (F) | VNL1356 |
| | 11 | Carriage shaft holder | VNT1039 |
| | 12 | Gear (E) | VNL1355 |
| | 13 | PU plate assembly | VXA1583 |
| | 14 | Screw | VLL – 183 |
| | 15 | Washer | VEF – 027 |
| | 16 | ..... | |
| | 17 | Carriage motor assembly-S | VXX1537 |
| | 18 | SL gear (A) | VNL1250 |
| | 19 | SL shaft (C) | VLL1289 |
| | 20 | Gear (G) | VNL1365 |
| | 21 | Motor holder assembly | VXA1939 |
| | 22 | Gear (H) | VNL1357 |
| | 23 | Gear (C) | VNL1353 |
| | 24 | SL shaft (A) | VLL1333 |
| | 25 | Gear (B) | VNL1352 |
| | 26 | Gear (D) | VNL1354 |
| | 27 | E ring | YE12FUC |
| | 28 | Washer | WT17D034D050 |
| | 29 | Screw | JGZ20P022FMC |
| | 30 | Screw | PMZ26P100FMC |
| | 31 | Screw | BMZ26P080FMC |
| | 32 | Screw | PMA20P040FMC |
| | 33 | Screw | PBZ26P040FMC |
| | 34 | Screw | PBZ20P070FCC |
| | 35 | Screw | BBZ26P050FMC |
| | 36 | Actuater assembly | VXX1551 |
| | 37 | Sensor assembly | VEX1018 |
| | 38 | Pre-pick up assembly | VXX1554 |
| | 39 | ..... | |
| | 40 | Screw | PMA20P060FMC |
| | 41 | Screw | PMA20P080FMC |
| | 42 | Screw | PMA20P140FMC |
| | 43 | Screw | BMZ20P060FMC |
| | 44 | Sensor spring | VBH1087 |
| | 45 | Cushion | VEC1497 |
| | 46 | Spacer | VEC1496 |
| NSP | 101 | Slider motor | VXM1027 |
| NSP | 102 | SLMB assembly | VNP1295 |
| | 103 | Pick up assembly-S | VXX1679 |
| | 104 | Sensor stay | VNH1037 |
| NSP | 105 | HEAD assembly | VWV1178 |



## 4.37 PACKING

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Pad (U) | RHA1097 |
| | 2 | Pad (L) | RHA1098 |
| | 3 | Packing case (KUC type) | RHG1391 |
| | | Packing case (SEM type) | RHG1400 |
| | 4 | Mirror mat | RHC1029 |
| | 5 | Packing bag | RHL1013 |
| | 6 | PP joint | AHG – 204 |
| | 7 | Cord with plug (VIDEO) | DDE1014 |
| | 8 | Cord with plug (AUDIO) | DDE1016 |
| | 9 | key assembly | DXC1002 |
| | 10 | Adaptor case | RHF1032 |
| | 11 | Operating instructions (adaptor) | RRG1004 |
| | 12 | Operating instructions (English) (KUC type) | RRB1122 |
| | | Operating instructions (English, French, German, Italian, Spanish) (SEM type) | RRE1066 |
| | 13 | Sub instructions | RRG1005 |
| NSP | 14 | Adaptor (2) assembly | RXA1524 |
| NSP | 15 | Vinyl bag | Z21 – 029 |
| NSP | 16 | Vinyl bag | VHL – 014 |
| | 17 | Follow up card (KUC type) | DRY1032 |
| | 18 | Vinyl bag (KUC type) | DHL1011 |
| | 19 | 9P D – Sub cord | RDE1033 |
| | 20 | Serial label (KUC type) | RRW1113 |
| | 21 | Key | DNK1698 |
| | 22 | Adaptor (2) | RNK1877 |
| | 23 | Cloth | RHC1031 |



# 5. SCHEMATIC AND PCB CONNECTIONS DIAGRAMS

**Note:** (Type 4)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ⎕ : DC voltage (V) in PLAY mode unless otherwise noted.
   ⇨ mA or ⇦ mA: DC current in PLAY mode unless otherwise noted.
   Value in ( ) is DC current in STOP mode.
7. **OTHERS:**
   - ➡ : Signal route.
   - ⊘ : Adjusting point.
   - ▼ (Red) : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SWITCHES** (Underline indicates switch position):

SYSB unit

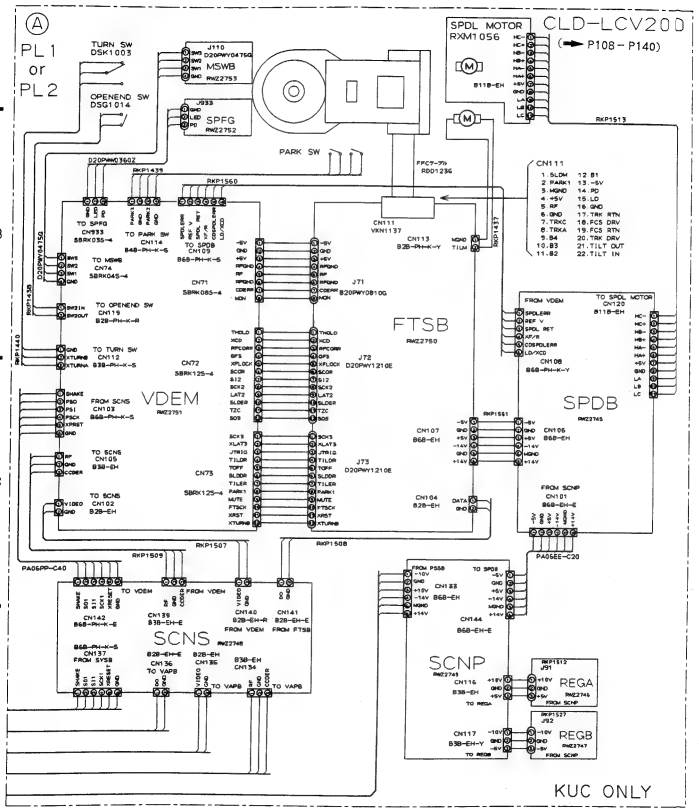
S101 : CURSOR ◀
S102 : CURSOR ▲
S103 : CURSOR ▶
S104 : CURSOR ▼
S105 : MODE −
S106 : MODE +

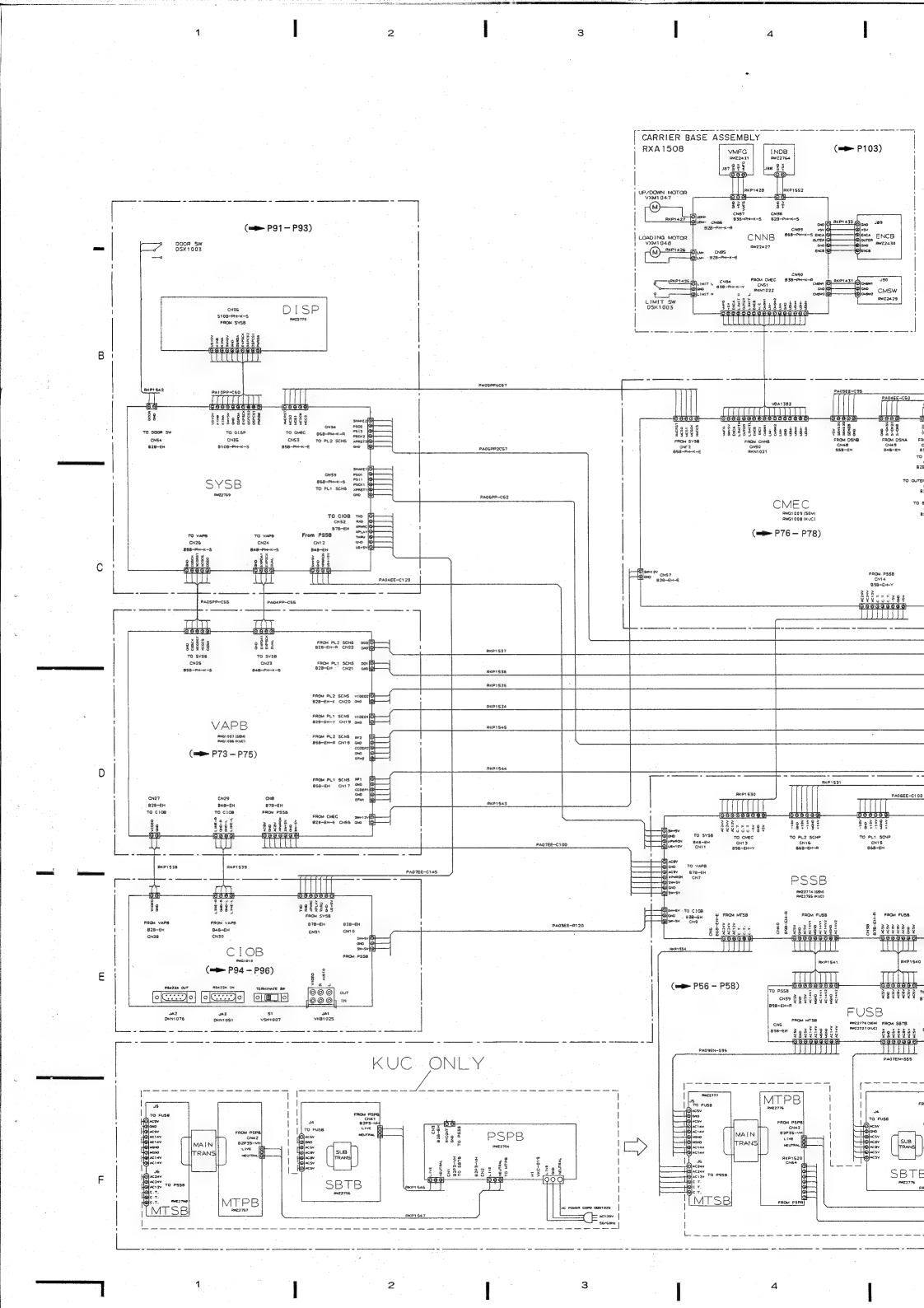
DISP unit

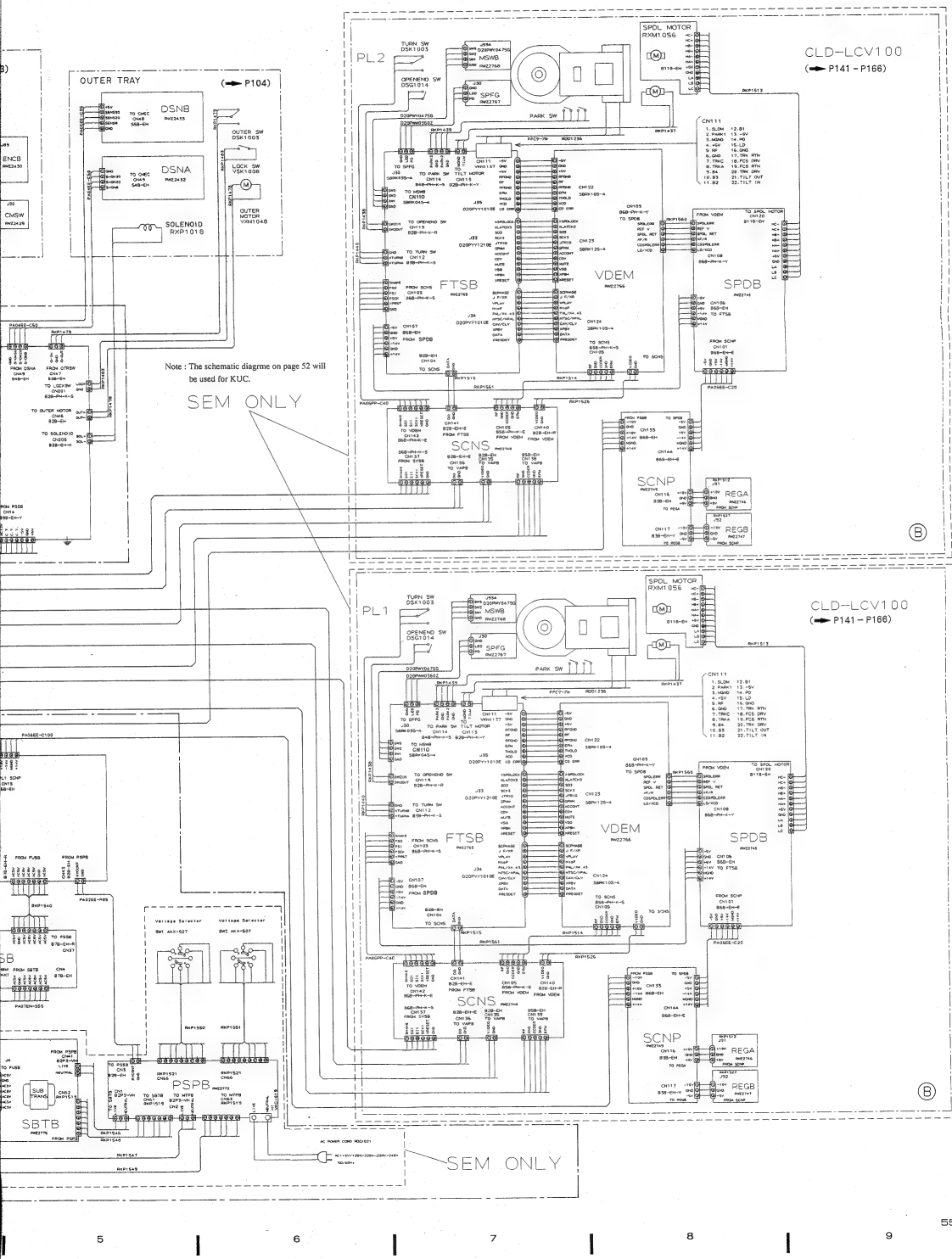
S301 : 1
S302 : 2
S303 : 3
S304 : 4
S305 : 5
S306 : 6
S307 : 7
S308 : 8
S309 : 9
S310 : 10
S311 : OPEN/CLOSE
S312 : STANDBY ON

## 1. OVERALL WIRING DIAGRAM (MAIN SECTION AND CARRIER BASE SECTION)

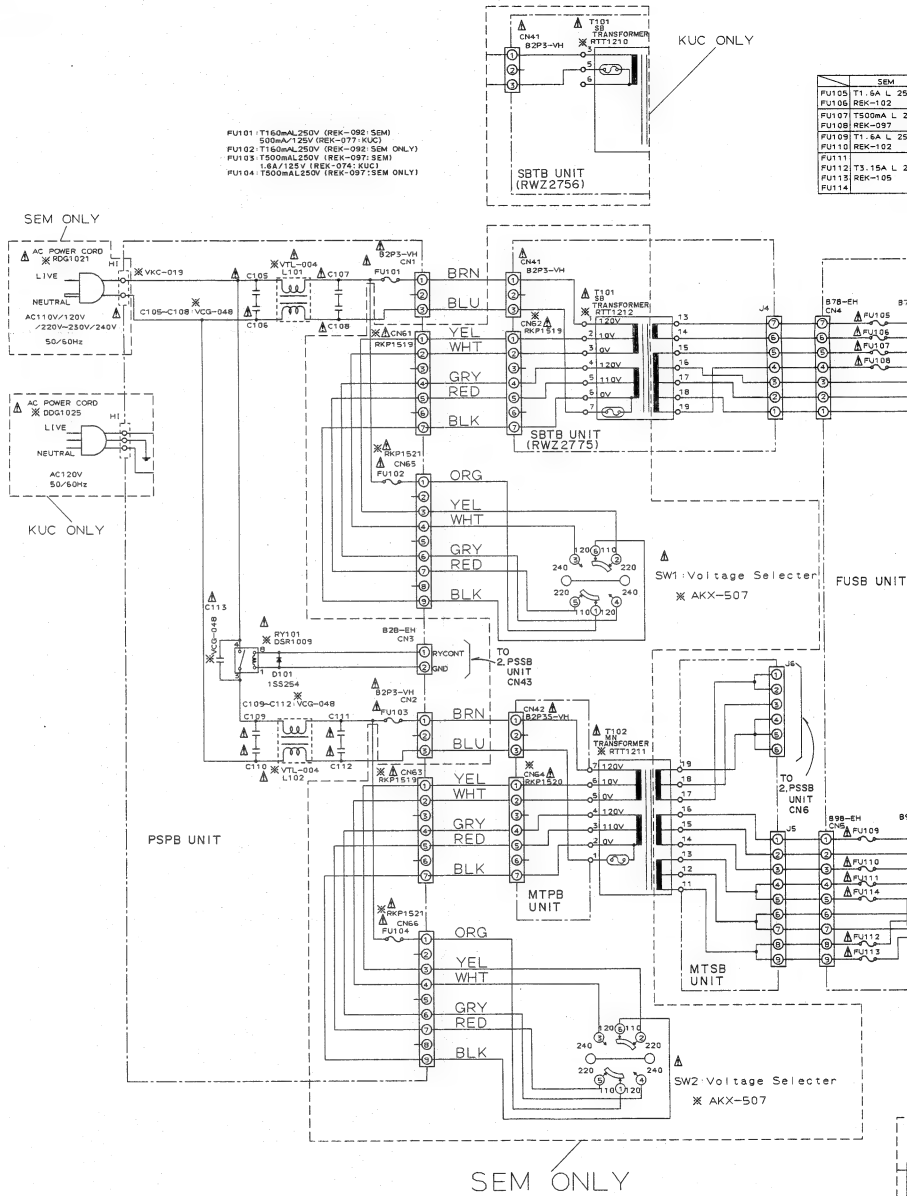
**Note** : For LC-V200/KUC, the schematic diagram Ⓑ for CLD-LCV100 on page 55 is used instead of the following schematic diagram Ⓐ.




CARRIER BASE ASSEMBLY
RXA1508
(➡ P103)
VMFG
INDB
UP/DOWN MOTOR
VXM1047
LOADING MOTOR
VXM1048
CNNB
ENCB
CMSW
LIMIT SW
DSK1005
(➡ P91 – P93)
DOOR SW
DSK1003
DISP
SYSB
CMEC
(➡ P76 – P78)
VAPB
(➡ P73 – P75)
CIOB
(➡ P94 – P96)
PSSB
FUSB
(➡ P56 – P58)
KUC ONLY
MAIN TRANS
SUB TRANS
SBTB
PSPB
MTPB
MTSB

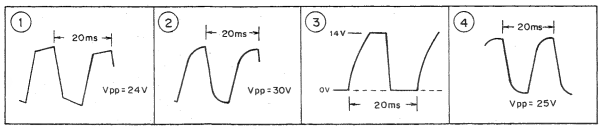

OUTER TRAY
(➡ P104)
DSNB
DSNA
OUTER SW DSK1003
LOCK SW VSK1038
OUTER MOTOR VXM1048
SOLENOID RXP1018
Note : The schematic diagrme on page 52 will be used for KUC.
SEM ONLY
PL2
TURN SW DSK1003
OPENEND SW DSG1014
SPFG
MSWB
SPDL MOTOR RXM1056
PARK SW
CLD-LCV100
(➡ P141 – P166)
FTSB
VDEM
SPDB
SCNS
SCNP
REGA
REGB
PL1
SEM ONLY
PSPB
SBTB
SUB TRANS
Voltage Selector
SW1 AK3-527
SW2 AK4-527
AC POWER CORD RDG1021

## 2. PSSB, SBTB, PSPB, MTPB, MTSB, AND FUSB UNIT

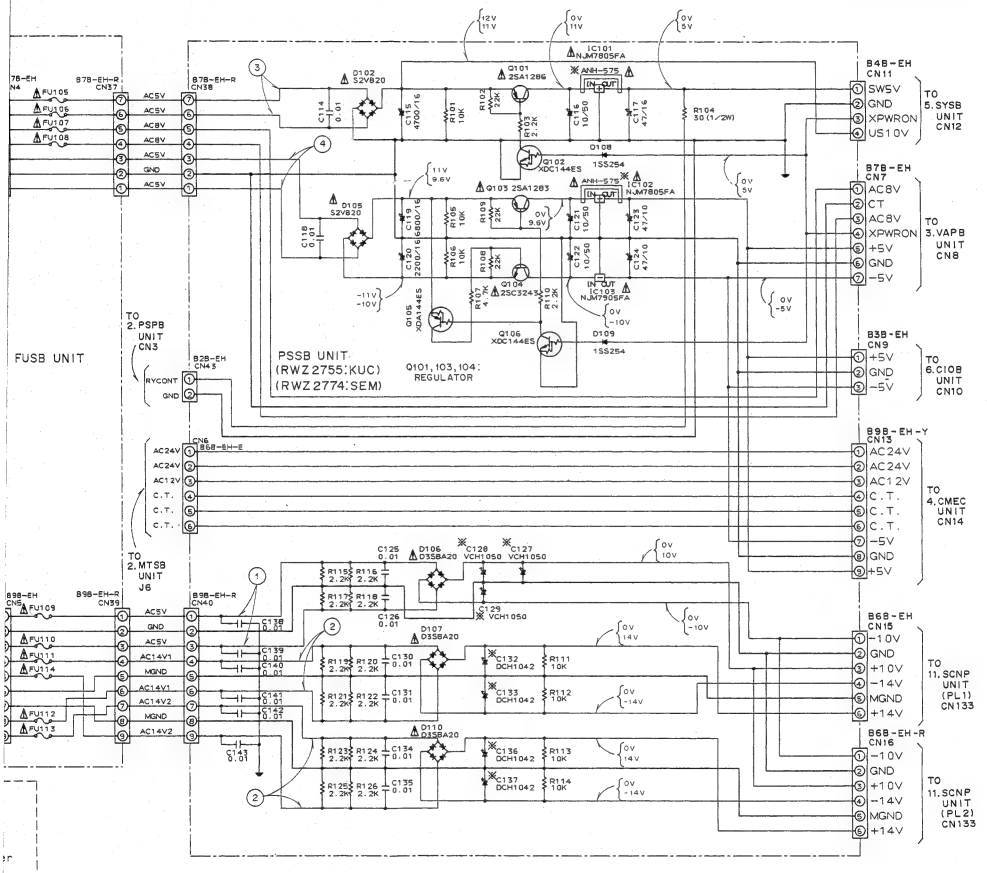



| | SEM |
|---|---|
| FU105 | T1.6A L 25 |
| FU106 | REK-102 |
| FU107 | T500mA L 2 |
| FU108 | REK-097 |
| FU109 | T1.6A L 25 |
| FU110 | REK-102 |
| FU111 | |
| FU112 | T3.15A L 2 |
| FU113 | REK-105 |
| FU114 | |

| | SBM | KUC |
|---|---|---|
| 105 | T1.6A L 250V | 1.6A/125V |
| 106 | REK-102 | REK-074 |
| 107 | T500mA L 250V | 500mA/125V |
| 108 | REK-097 | REK-077 |
| 109 | T1.6A L 250V | 1.6A/125V |
| 110 | REK-102 | REK-074 |
| 111 | | |
| 112 | T3.15A L 250V | 3.15A/125V |
| 113 | REK-105 | REK-083 |
| 114 | | |

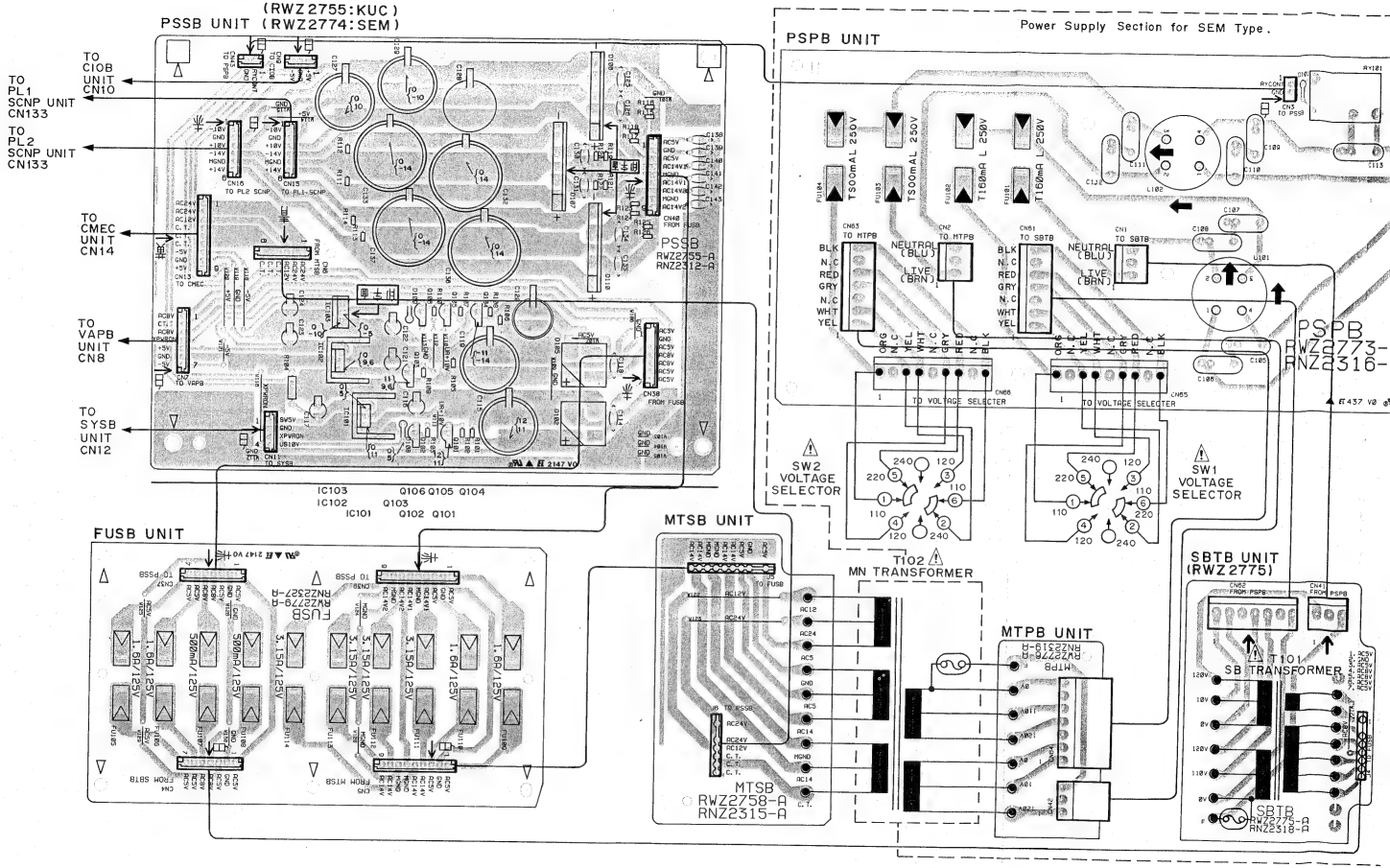


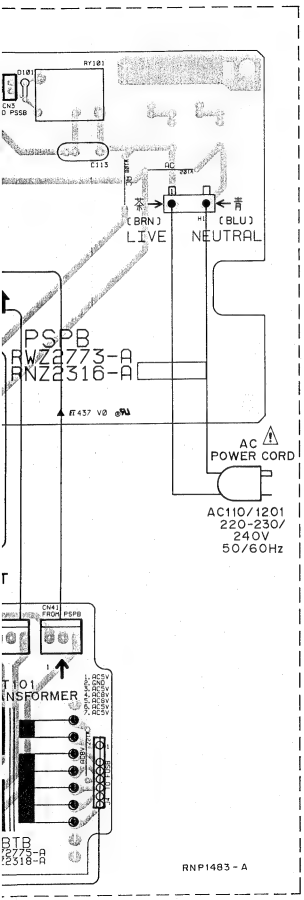

NOTE :
{ D.C. Voltage during STAND BY
{ D.C. Voltage during POWER ON

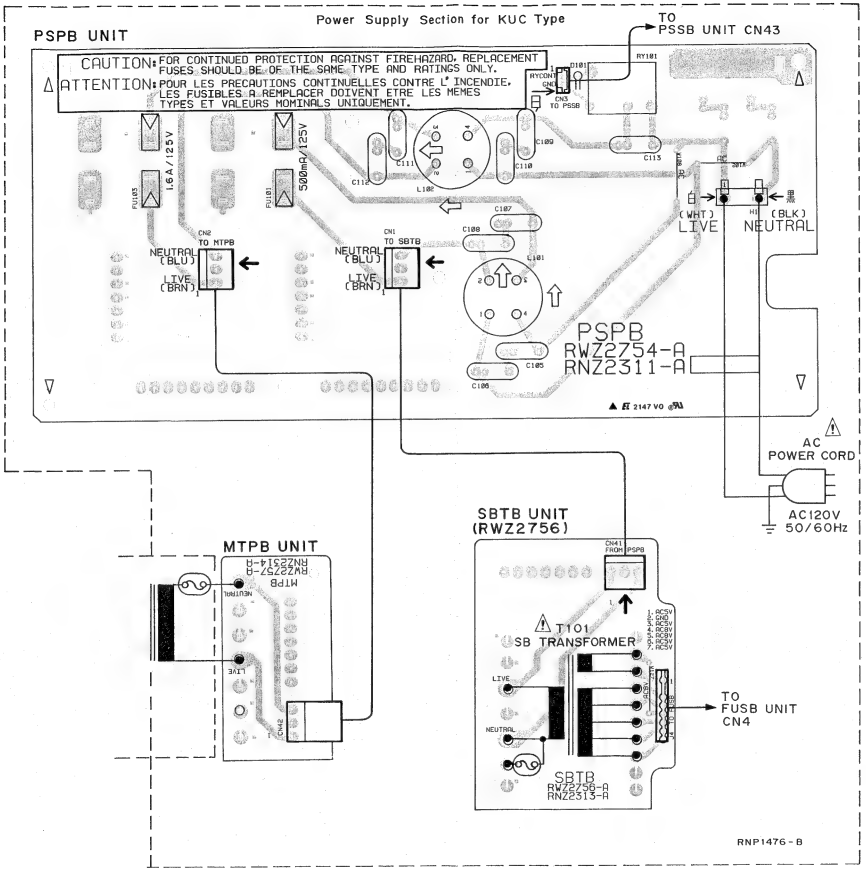



[Note]
1. Capacitors not specified are CKCYF.
2. Resistors not specified are 1/6W.
3. Be sure to use the specified component(components conforming to the safety standard) for parts with ⚠.

• View from component side






| P.C.B. pattern diagram indication | Corresponding part symbol | Part name |
|---|---|---|
| | | Transistor |
| | | FET |
| | | Diode |
| | | Zenner diode |
| | | LED |
| | | Varactor |
| | | Tact switch |
| | | Inductor |
| | | Coil |
| | | Transformer |
| | | Filter |
| | | Ceramic capacitor |
| | | Mylar capacitor |
| | | Styrol capacitor |
| | | Electrolytic capacitor (Non polarized) |
| | | Electrolytic capacitor (Noiseless) |
| | | Electrolytic capacitor (Polarized) |
| | | Electrolytic capacitor (Polarized) |
| | | Power capacitor |
| | | Semi-fixed resistor |
| | | Resistor array |
| | | Resistor |
| | | Resonator |
| | | Thermistor |

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

PSPB UNIT
Power Supply Section for KUC Type
TO PSSB UNIT CN43
CAUTION: FOR CONTINUED PROTECTION AGAINST FIREHAZARD, REPLACEMENT FUSES SHOULD BE OF THE SAME TYPE AND RATINGS ONLY.
ATTENTION: POUR LES PRECAUTIONS CONTINUELLES CONTRE L' INCENDIE, LES FUSIBLES A REMPLACER DOIVENT ETRE LES MEMES TYPES ET VALEURS MONTRES UNIQUEMENT.
+12V
+15V
NEUTRAL (BLU)
LIVE (BRN)
TO SBTB CN01
TO MTPB CN02
LIVE (WHT)
NEUTRAL (BLK)
PSPB
RW22754-A
RN22311-A
AC POWER CORD
AC120V 60Hz
SBTB UNIT (RW22756)
T101 SB TRANSFORMER
TO PSSB UNIT CN4
SBTB
RW22756-A
RN22313-A
MTPB UNIT
RN19476-B
RN19483-A

• View from soldering side

## 3. VAP8 UNIT

• View from soldering side

VAP8 UNIT ( RWG1007:SEM )
( RWG1006:KUC )



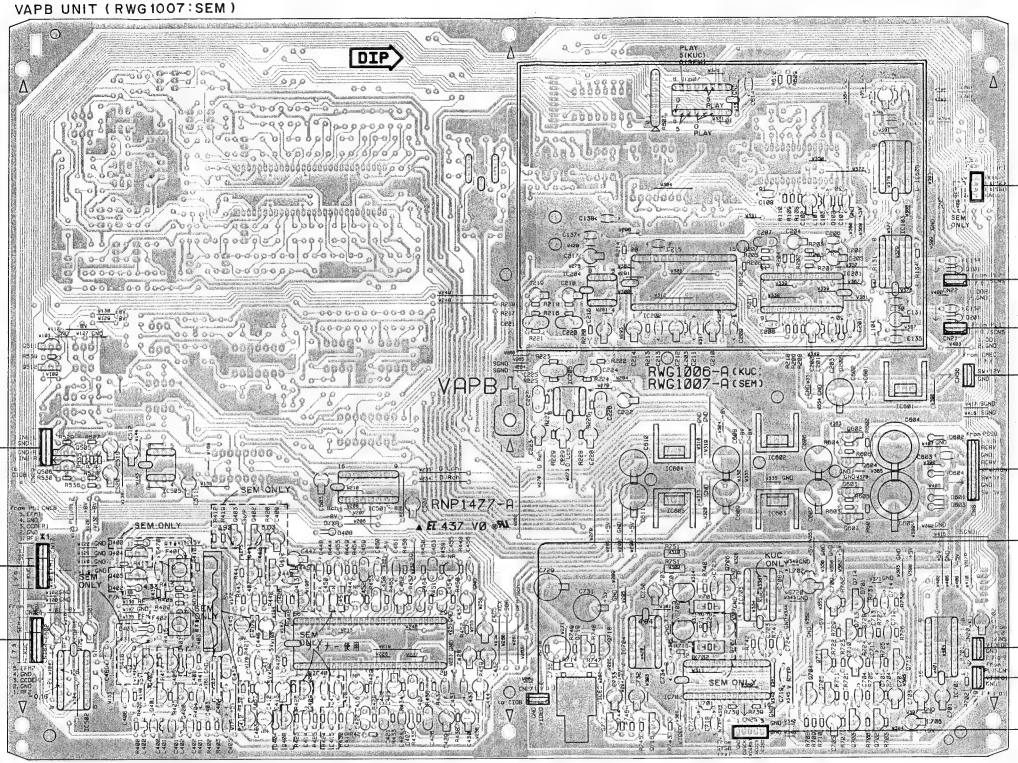

X1

| | CN17 | CN18 |
|---|---|---|
| KUC | 3Pin | 3Pin |
| SEM | 5Pin | 5Pin |

## 3. VAPB UNIT

• View from component side

( RWG1006 : KUC )
VAPB UNIT ( RWG1007 : SEM )




X1

| | CN17 | CN18 |
|---|---|---|
| KUC | 3Pin | 3Pin |
| SEM | 5Pin | 5Pin |

| IC 701 | | | |
|---|---|---|---|
| Pin No. | Volts [V] | Pin No. | Volts [V] |
| 1 | 0.39 | 9 | 5 |
| 2 | 0 | 10 | 5 |
| 3 | 0.43 | 11 | 0 |
| 4 | 0.43 | 12 | 0.43 |
| 5 | 0 | 13 | 0.39 |
| 6 | 0 | 14 | 0.43 |
| 7 | − 5 | 15 | 0.39 |
| 8 | 0 | 16 | 5 |

| IC 702 | | | |
|---|---|---|---|
| Pin No. | Volts [V] | Pin No. | Volts [V] |
| 1 | 0 | 17 | 0.82 |
| 2 | 4.94 | 18 | 4.9 |
| 3 | 4.97 | 19 | 2.26 |
| 4 | 2.29 | 20 | 2.13 |
| 5 | 2.18 | 21 | 0.013 |
| 6 | 4.92 | 22 | 0.011 |
| 7 | 4.66 | 23 | 0.012 |
| 8 | 2 | 24 | 0.012 |
| 9 | 0 | 25 | 0.013 |
| 10 | 4.88 | 26 | 0.01 |
| 11 | 0 | 27 | 4.46 |
| 12 | 0.72 | 28 | 1.522 |
| 13 | 1.07 | 29 | 2.36 |
| 14 | 0.62 | 30 | 3.37 |
| 15 | 1.69 | 31 | 5.02 |
| 16 | 0.61 | 32 | 4.9 |

| IC 202 | | | |
|---|---|---|---|
| Pin No. | Volts [V] | Pin No. | Volts [V] |
| 1 | 2.0 | 15 | 0 |
| 2 | 3.95 | 16 | 0 |
| 3 | 5 | 17 | 0 |
| 4 | 5 | 18 | 0 |
| 5 | 2.43 | 19 | 5 |
| 6 | 0 | 20 | 0 |
| 7 | 2.43 | 21 | 0 |
| 8 | 0 | 22 | 0 |
| 9 | 0 | 23 | 1.51 |
| 10 | 0 | 24 | 2.34 |
| 11 | 0 | 25 | 1.72 |
| 12 | 4.99 | 26 | 0 |
| 13 | 0 | 27 | 0 |
| 14 | 0 | 28 | 1.98 |

| IC 204 | | | |
|---|---|---|---|
| Pin No. | Volts [V] | Pin No. | Volts [V] |
| 1 | 1.99 | 5 | 2.0 |
| 2 | 1.99 | 6 | 1.99 |
| 3 | 2.0 | 7 | 1.99 |
| 4 | − 8 | 8 | 8 |

| IC 205 | | | |
|---|---|---|---|
| Pin No. | Volts [V] | Pin No. | Volts [V] |
| 1 | 0 | 5 | 0 |
| 2 | 0 | 6 | 0 |
| 3 | 0 | 7 | 0 |
| 4 | − 8 | 8 | 8 |

| IC 401 | | | |
|---|---|---|---|
| Pin No. | Volts [V] | Pin No. | Volts [V] |
| 1 | − 2.82 | 29 | 0 |
| 2 | 0 | 30 | 0 |
| 3 | 0.01 | 31 | − 2.05 |
| 4 | − 4.93 | 32 | − 3.04 |
| 5 | 0 | 33 | − 3.06 |
| 6 | − 2.07 | 34 | 5.02 |
| 7 | 0.01 | 35 | 0 |
| 8 | − 2.03 | 36 | 0 |
| 9 | − 1.8 | 37 | 0 |
| 10 | − 1.84 | 38 | − 2.77 |
| 11 | − 2.1 | 39 | 0.08 |
| 12 | − 2.07 | 40 | − 4.79 |
| 13 | − 2.75 | 41 | − 3.67 |
| 14 | 0 | 42 | − 2.11 |
| 15 | − 2.11 | 43 | 0 |
| 16 | − 0.71 | 44 | − 2.76 |
| 17 | − 4.79 | 45 | − 2.07 |
| 18 | 0.08 | 46 | − 2.65 |
| 19 | − 2.76 | 47 | − 2.52 |
| 20 | 0 | 48 | − 1.81 |
| 21 | 0 | 49 | − 1.95 |
| 22 | 0 | 50 | 0 |
| 23 | − 3.06 | 51 | − 2.08 |
| 24 | 5.02 | 52 | 0 |
| 25 | 0.03 | 53 | − 4.93 |
| 26 | − 0.06 | 54 | − 0.75 |
| 27 | − 4.93 | 55 | 0 |
| 28 | 0 | 56 | − 2.82 |

Operation Conditions
During STOP
Blue back
No OSD (Screen display characters)

| IC 201 | | | |
|---|---|---|---|
| Pin No. | Volts [V] | Pin No. | Volts [V] |
| 1 | 0 | 16 | 2.0 |
| 2 | 2.38 | 17 | 0 |
| 3 | 2.37 | 18 | 0.74 |
| 4 | 5 | 19 | 0.79 |
| 5 | 4.97 | 20 | 0 |
| 6 | 2.37 | 21 | 2.44 |
| 7 | 5 | 22 | 0 |
| 8 | 4.92 | 23 | 2.43 |
| 9 | 0 | 24 | 0 |
| 10 | 0 | 25 | 0 |
| 11 | 4.05 | 26 | 0 |
| 12 | 3.26 | 27 | 1.99 |
| 13 | 1.72 | 28 | 0 |
| 14 | 3.26 | 29 | 1.98 |
| 15 | 5 | 30 | 5 |

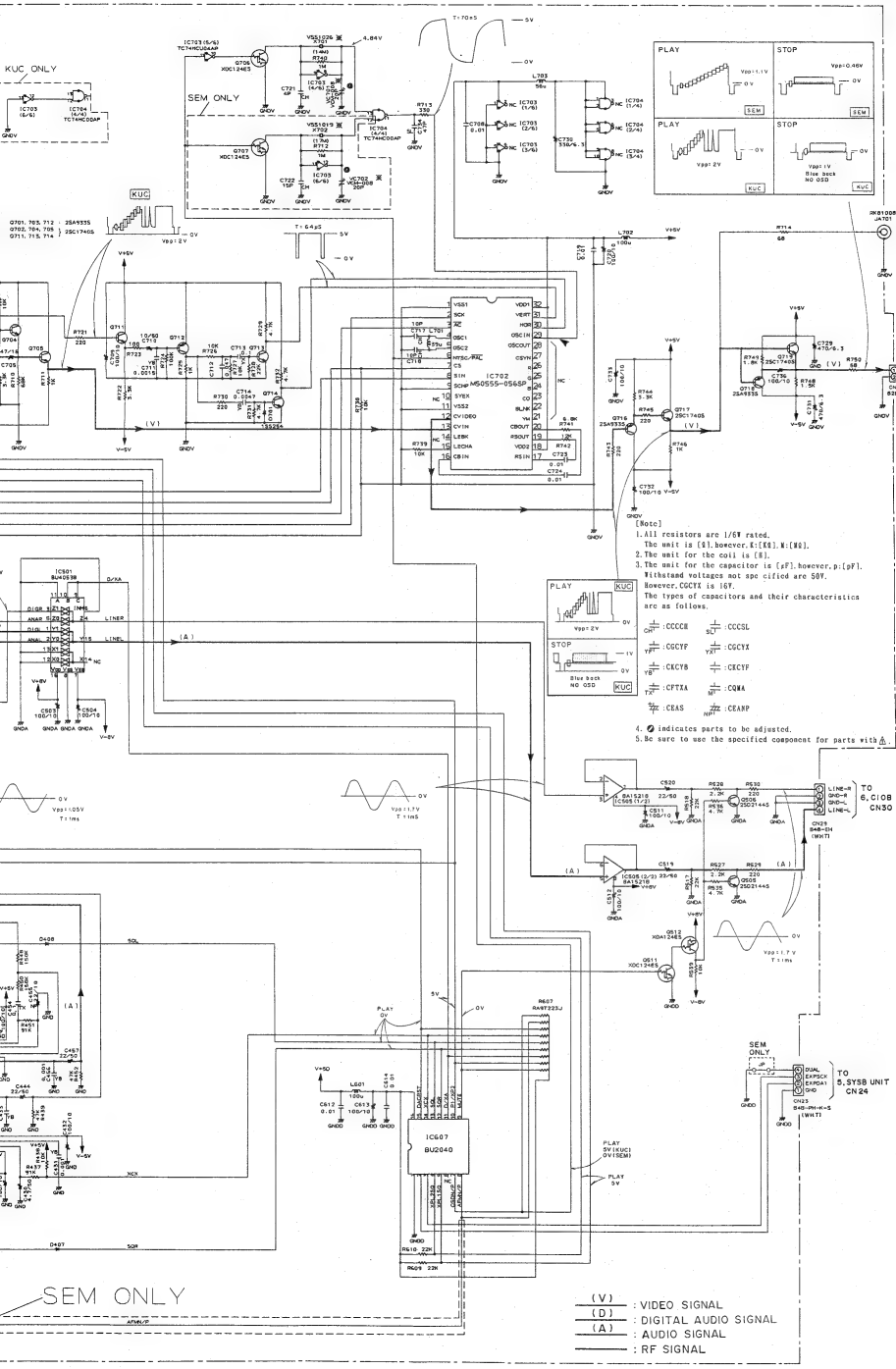
| IC 501 | | | |
|---|---|---|---|
| Pin No. | Volts [V] | Pin No. | Volts [V] |
| 1 | 0 | 9 | 4.98 |
| 2 | 0 | 10 | 4.98 |
| 3 | 0 | 11 | 0 |
| 4 | 0 | 12 | 0 |
| 5 | 0 | 13 | 0 |
| 6 | 0 | 14 | 0 |
| 7 | − 8 | 15 | 0 |
| 8 | 0 | 16 | 8 |

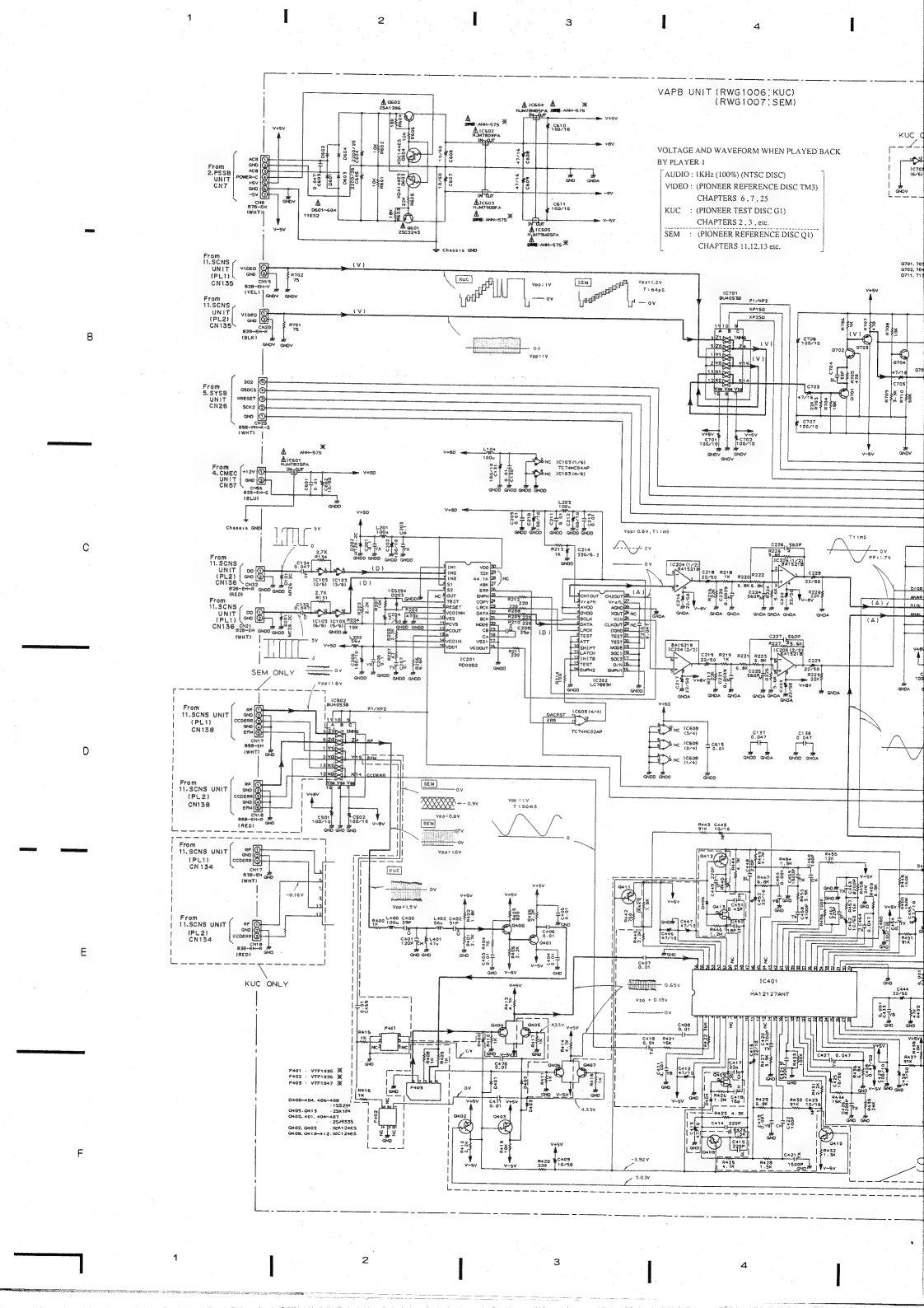
| IC 502 | | | |
|---|---|---|---|
| Pin No. | Volts [V] | Pin No. | Volts [V] |
| 1 | 0.056 | 9 | 4.98 |
| 2 | 0.044 | 10 | 4.98 |
| 3 | − 0.036 | 11 | 4.98 |
| 4 | − 0.036 | 12 | 0.54 |
| 5 | − 0.017 | 13 | 0.53 |
| 6 | 0 | 14 | 0.53 |
| 7 | − 8 | 15 | 0.017 |
| 8 | 0 | 16 | 8 |

| IC 505 | | | |
|---|---|---|---|
| Pin No. | Volts [V] | Pin No. | Volts [V] |
| 1 | 0 | 5 | 0 |
| 2 | 0 | 6 | 0 |
| 3 | 0 | 7 | 0 |
| 4 | − 8 | 8 | 8 |

| IC 607 | | | |
|---|---|---|---|
| Pin No. | Volts [V] | Pin No. | Volts [V] |
| 1 | 0 | 9 | 2.88 |
| 2 | 0.015 | 10 | 4.98 |
| 3 | 2.9 | 11 | 4.98 |
| 4 | 4.98 | 12 | 4.98 |
| 5 | 4.98 | 13 | 4.98 |
| 6 | 0.8 | 14 | 0.021 |
| 7 | 4.92 | 15 | 0.007 |
| 8 | 4.98 | 16 | 5 |

Operation Conditions
During STOP
Blue back
No OSD (Screen display characters)


KUC ONLY
SEM ONLY
PLAY
STOP
RCA PIN JACK
IC702 MS0555-056SP
IC607 BU2040
[Note]
1. All resistors are 1/6W rated.
The unit is [Ω], however, K:[KΩ], M:[MΩ].
2. The unit for the coil is [H].
3. The unit for the capacitor is [pF]; however, p:[pF].
Withstand voltages not specified are 50V.
However, CGCYI is 16V.
The types of capacitors and their characteristics are as follows.
:CCCCH :CCCSL
:CGCYF :CGCYX
:CKCYB :CKCYF
:CFTXA :CQMA
:CEAS :CEANP
4. indicates parts to be adjusted.
5. Be sure to use the specified component for parts with ⚠.
(V) : VIDEO SIGNAL
(D) : DIGITAL AUDIO SIGNAL
(A) : AUDIO SIGNAL
: RF SIGNAL
TO 6,C10B UNIT CN28
TO 6,C10B UNIT CN30
TO 5,SYSB UNIT CN24


VAPB UNIT (RWG1006: KUC)
(RWG1007: SEM)
VOLTAGE AND WAVEFORM WHEN PLAYED BACK BY PLAYER 1
AUDIO : 1KHz (100%) (NTSC DISC)
VIDEO : (PIONEER REFERENCE DISC TM3) CHAPTERS 6, 7, 25
KUC : (PIONEER TEST DISC G1) CHAPTERS 2, 3, etc.
SEM : (PIONEER REFERENCE DISC Q1) CHAPTERS 11,12,13 etc.
SEM ONLY
KUC ONLY
From 2.PSSB UNIT CN7
From 11.SCNS UNIT (PL1) CN135
From 11.SCNS UNIT (PL2) CN135
From 5.SYSB UNIT CN26
From 4.CMEC UNIT CN57
From 11.SCNS UNIT (PL1) CN136
From 11.SCNS UNIT (PL2) CN136
From 11.SCNS UNIT (PL1) CN138
From 11.SCNS UNIT (PL2) CN138
From 11.SCNS UNIT (PL1) CN134
From 11.SCNS UNIT (PL2) CN134
IC701 BU4053B
IC201 RDS052
IC401 HA12127ANT
IC603 NJM79M05FA
IC604 NJM78M05FA
IC605 NJM79M05FA
IC606 TC74HC02AP
IC607 LC7883M
IC608 TC74HC02AP
IC501 BU4053B
IC502 BU4053B
IC203 TC74HC04AP
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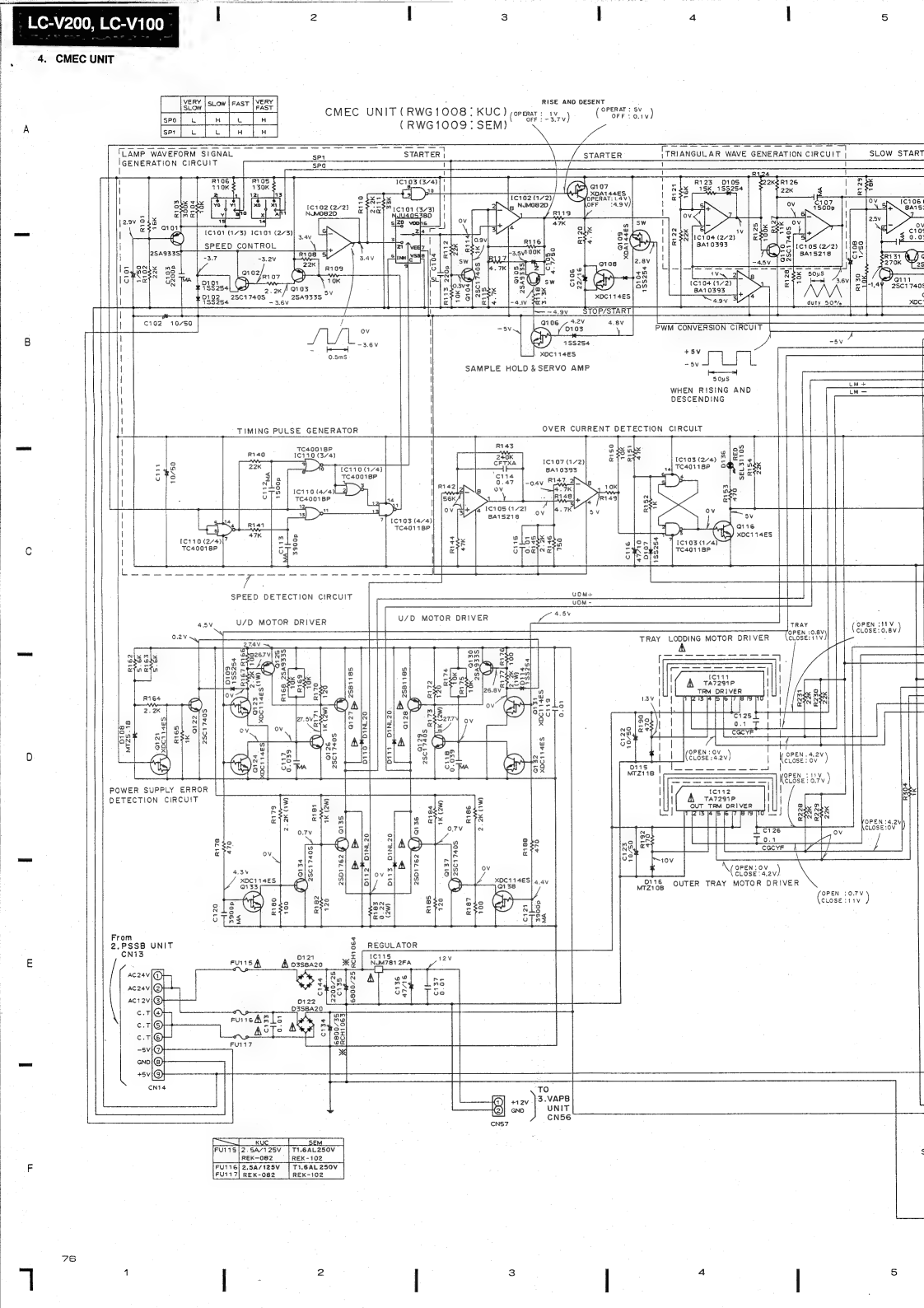
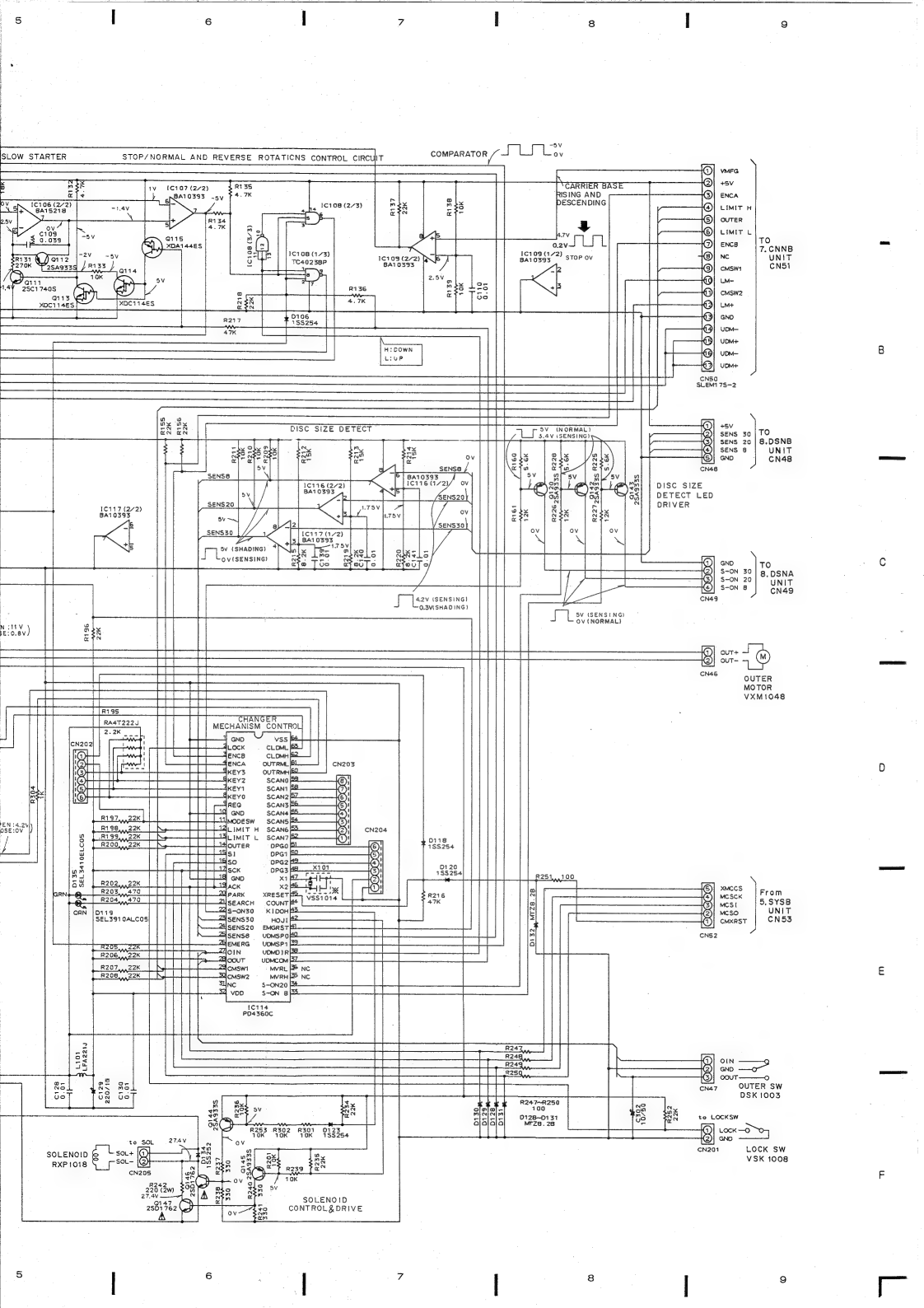
IC994 BA15218
IC995 BA15218
IC996 BA15218
IC997 BA15218
IC998 BA15218
IC999 BA15218
IC1000 BA15218

## 4. CMEC UNIT



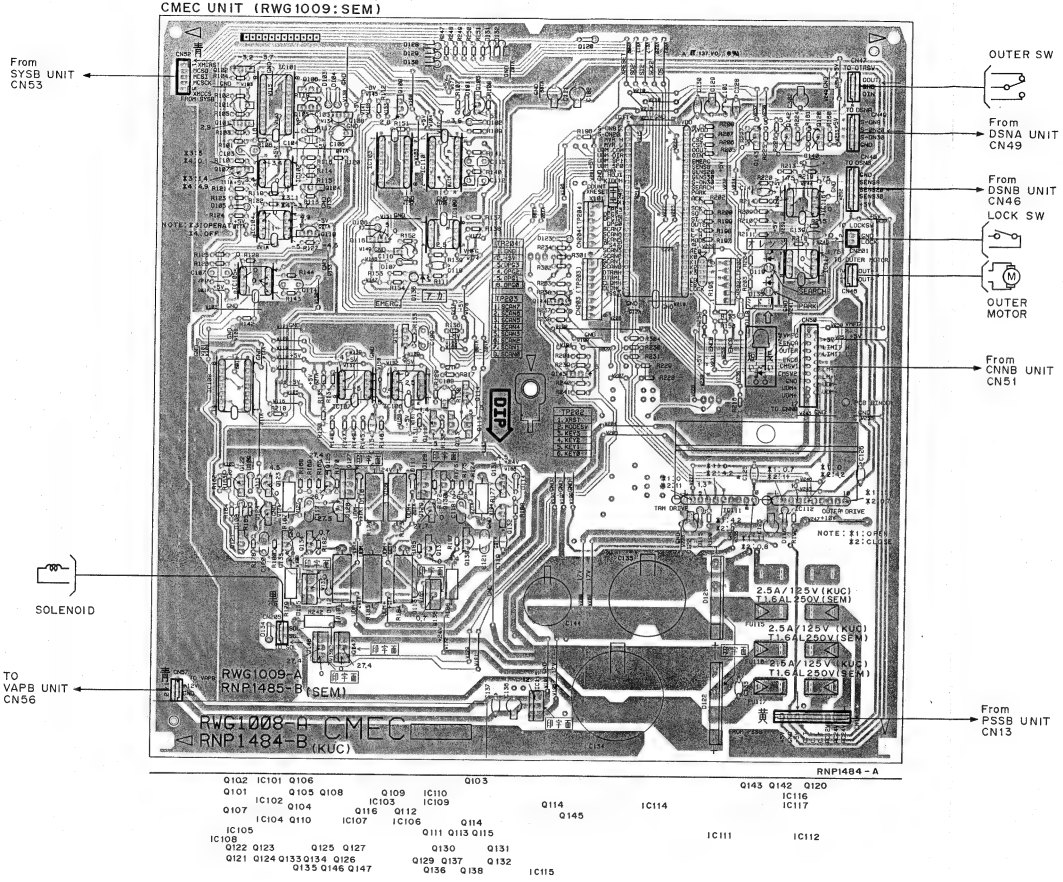

| | VERY SLOW | SLOW | FAST | VERY FAST |
|---|---|---|---|---|
| SP0 | L | H | L | H |
| SP1 | L | L | H | H |

| | KUC | SEM |
|---|---|---|
| FU115 | 2.5A/125V REK-082 | T1.6AL250V REK-102 |
| FU116 FU117 | 2.5A/125V REK-082 | T1.6AL250V REK-102 |


SLOW STARTER
STOP/NORMAL AND REVERSE ROTATIONS CONTROL CIRCUIT
COMPARATOR
CARRIER BASE RISING AND DESCENDING
STOP 0V
TO 7. CNNB UNIT CN51
CN50 SLEM175-2
H: DOWN L: UP
DISC SIZE DETECT
DISC SIZE DETECT LED DRIVER
TO 8. DSNB UNIT CN48
CN48
TO 8. DSNA UNIT CN49
CN49
5V (SENSING) 0V (NORMAL)
4.2V (SENSING) 0.3V(SHADING)
CN46
OUTER MOTOR VXM1048
CHANGER MECHANISM CONTROL
IC114 PD4360C
CN202
CN203
CN204
X101
VSS1014
From 5. SYSB UNIT CN53
CN52
OUTER SW DSK1003
CN47
LOCK SW VSK1008
CN201
to LOCKSW
SOLENOID RXP1018
CN205
SOLENOID CONTROL & DRIVE

• View from component side

(RWG1008 :KUC)
CMEC UNIT (RWG1009: SEM)



• View from soldering side

CMEC UNIT (RWG1008:KUC)
(RWG1009:SEM)

## 5. SYSB AND DISP UNIT

• View from soldering side

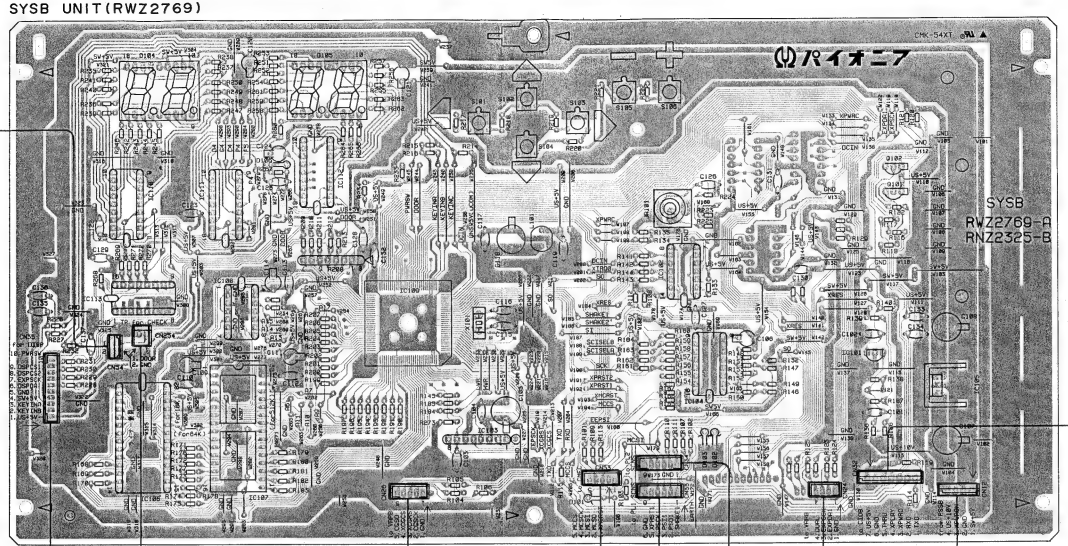
SYSB UNIT(RW22769)

DISP UNIT(RW22770)

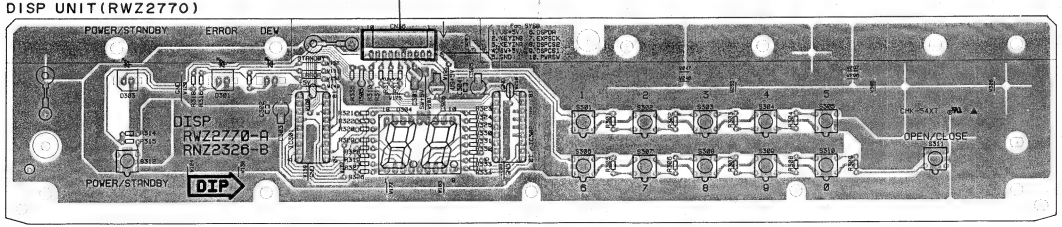
## 5. SYSB AND DISP UNIT

• View from component side

SYSB UNIT(RWZ2769)




DISP UNIT(RWZ2770)




RNP1479-B

## ● SYSB unit

Voltages of the pins of IC109 (1/2) (During STANDBY and POWER ON (STOP))

| Pin No. | STAND BY | POWER ON |
|---|---|---|
| 1 | 4.98V | 4.98V |
| 2 | GND | GND |
| 3 | GND | GND |
| 4 | 0V | 5V |
| 5 | 0V | ② |
| 6 | 0V | ② |
| 7 | 0V | 5V |
| 8 | NC | NC |
| 9 | NC | NC |
| 10 | – | – |
| 11 | 4.92V | 4.92V |
| 12 | ⑦ | ⑦ |
| 13 | ⑦ | ⑦ |
| 14 | ⑦ | ⑦ |
| 15 | ⑦ | ⑦ |
| 16 | ⑦ | ⑦ |
| 17 | ⑦ | ⑦ |
| 18 | ⑦ | ⑦ |
| 19 | ⑦ | ⑦ |
| 20 | VSS | VSS |
| 21 | ⑧ | ⑧ |
| 22 | ⑧ | ⑧ |
| 23 | ⑧ | ⑧ |
| 24 | ⑧ | ⑧ |
| 25 | ⑧ | ⑧ |
| 26 | ⑧ | ⑧ |
| 27 | ⑧ | ⑧ |
| 28 | ⑧ | ⑧ |

| Pin No. | STAND BY | POWER ON |
|---|---|---|
| 29 | ⑧ | ⑧ |
| 30 | ⑧ | ⑧ |
| 31 | ⑧ | ⑧ |
| 32 | ⑧ | ⑧ |
| 33 | ⑧ | ⑤ |
| 34 | ⑤ | ⑧ |
| 35 | ⑧ | ⑤ |
| 36 | ⑧ | ⑧ |
| 37 | GND | GND |
| 38 | ⑧ | ⑧ |
| 39 | NC | NC |
| 40 | NC | NC |
| 41 | NC | NC |
| 42 | NC | NC |
| 43 | NC | NC |
| 44 | NC | NC |
| 45 | NC | NC |
| 46 | GND | GND |
| 47 | ② | ② |
| 48 | ② | ② |
| 49 | ② | ② |
| 50 | ⑤ | ⑤ |
| 51 | ② | ② |
| 52 | 0V | ④ |
| 53 | 0V | ⑤ |
| 54 | NC | NC |
| 55 | VCC | VCC |
| 56 | 4.93V | 4.93V |

Refer to the waveforms (Page 90) for (No) s in the table.

Voltages of the pins of IC109 (2/2) (During STANDBY and POWER ON (STOP))

| Pin No. | STAND BY | POWER ON |
|---|---|---|
| 57 | 4.93V | 0.015V |
| 58 | 4.96V | 4.96V |
| 59 | – | – |
| 60 | NC | NC |
| 61 | NC | NC |
| 62 | NC | NC |
| 63 | NC | NC |
| 64 | GND | GND |
| 65 | NC | NC |
| 66 | NC | NC |
| 67 | NC | NC |
| 68 | NC | NC |
| 69 | NC | NC |
| 70 | NC | NC |
| 71 | 4.93V | ④ |
| 72 | 4.93V | ④ |
| 73 | – | – |
| 74 | – | – |
| 75 | 5.0V | 0.026V |
| 76 | NC | NC |
| 77 | NC | NC |
| 78 | 0 | 5.0V |
| 79 | 0 | 5.0V |
| 80 | NC | NC |
| 81 | GND | GND |
| 82 | GND | GND |
| 83 | – | – |
| 84 | – | – |

| Pin No. | STAND BY | POWER ON |
|---|---|---|
| 85 | Following table | Following table |
| 86 | 3.75V | 3.75V |
| 87 | VCC | VCC |
| 88 | VCC | VCC |
| 89 | 4.93V | 4.93V |
| 90 | 0 | ② |
| 91 | 0 | ② |
| 92 | 5.0V | ② |
| 93 | 4.46V | 4.46V |
| 94 | 4.95V | 4.95V |
| 95 | 5.0V | ① |
| 96 | 0 | ① |
| 97 | GND | GND |
| 98 | – | – |
| 99 | – | – |
| 100 | GND | GND |
| 101 | NC | NC |
| 102 | NC | NC |
| 103 | NC | NC |
| 104 | ⑥ | ⑥ |
| 105 | ⑥ | ⑥ |
| 106 | NC | NC |
| 107 | NC | NC |
| 108 | VCC | VCC |
| 109 | VCC | VCC |
| 110 | VCC | VCC |
| 111 | GND | GND |
| 112 | VCC | VCC |

| Pin No. | Normal | Voltage when the tact switch is pressed | | | | | |
|---|---|---|---|---|---|---|---|
| | | Left (S101) | Top (S102) | Right (S103) | Bottom (S104) | – (S105) | + (S106) |
| 85 | 4.93V | 0.053V | 0.927V | 1.784V | 2.517V | 3.313V | 4.07V |

Refer to the waveforms (Page 90) for (No) s in the table.

The voltage of the input/output terminal of the SYSB unit (RWZ2769)

| Connector No. | No. | Signal Name | STAND BY | POWER ON (STOP) |
|---|---|---|---|---|
| CN53 | 1 | XMCRST | 0V | 5V |
| | 2 | MCSO | 0V | Waveform① in next page |
| | 3 | MCSI | 0V | Waveform④ in next page |
| | 4 | MCSCK | 0V | Waveform② in next page |
| | 5 | MCCS | 0V | Waveform② in next page |

| | | | | |
|---|---|---|---|---|
| CN26 | 1 | GND | 0V | 0V |
| | 2 | CGSCK | 0V | Waveform② in next page |
| | 3 | XCGRST | 0V | 5V |
| | 4 | XCGCS | 0V | Waveform② in next page |
| | 5 | CGSO | 0V | Waveform① in next page |

| | | | | |
|---|---|---|---|---|
| CN33<br>CN34 | 1 | SHAKE 1 | 0V | Waveform② in next page |
| | 2 | PSO 1 | 0V | Waveform① in next page |
| | 3 | PSI 1 | 0V | Waveform② in next page |
| | 4 | PSCK 1 | 0V | Waveform② in next page |
| | 5 | XPRST 1 | 0V | 5V |
| | 6 | GND | 0V | 0V |

| | | | | |
|---|---|---|---|---|
| CN24 | 1 | GND | 0V | 0V |
| | 2 | EXPDA 1 | 0V | Waveform④ in next page |
| | 3 | EXPSCK | Waveform③ in next page | Waveform⑤ in next page |
| | 4 | DUAL | 5V for KUC (LC-V200) and 0V for SEM (LC-V100). | |

| | | | | |
|---|---|---|---|---|
| CN32 | 1 | TXD | 4.95V | 4.95V |
| | 2 | RXD | 4.46V | 4.46V |
| | 3 | XPWRC | 5.0V | 0.026V |
| | 4 | XPLAY | 4.96V | 4.96V |
| | 5 | THRU | 0.006V | -4.89V |
| | 6 | GND | 0V | 0V |
| | 7 | US +5V | 5.0V | 5.0V |

The voltage of the input/output terminal of the SYSB unit (RWZ2769)

| Connector No. | No. | Signal Name | STAND BY | POWER ON (STOP) |
|---|---|---|---|---|
| CN12 | 1 | SW + 5V | 0V | 5V |
| | 2 | GND | 0V | 0V |
| | 3 | XPWRON | 0V | 5V |
| | 4 | US + 10V | 12V | 12V |

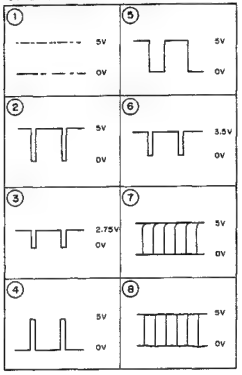
| | | | | |
|---|---|---|---|---|
| CN35 | 1 | US + 5V | 5V | 5V |
| | 2 | KEY IN B | Following table | Following table |
| | 3 | KEY IN A | Following table | Following table |
| | 4 | SW + 5V | 0V | 5V |
| | 5 | GND | 0V | 0V |
| | 6 | DSPDA | Waveform ⑥ in appendix 1 | Waveform ⑥ in appendix 1 |
| | 7 | EXPSCK | Waveform ⑤ in appendix 1 | Waveform ⑤ in appendix 1 |
| | 8 | DSPCS 2 | Waveform ⑦ in appendix 1 | Waveform ⑦ in appendix 1 |
| | 9 | DSPCS 1 | Waveform ⑦ in appendix 1 | Waveform ⑦ in appendix 1 |
| | 10 | PWRSW | 0V when the STANDBY/ON key (S312) is ON and 5V when OFF. | |

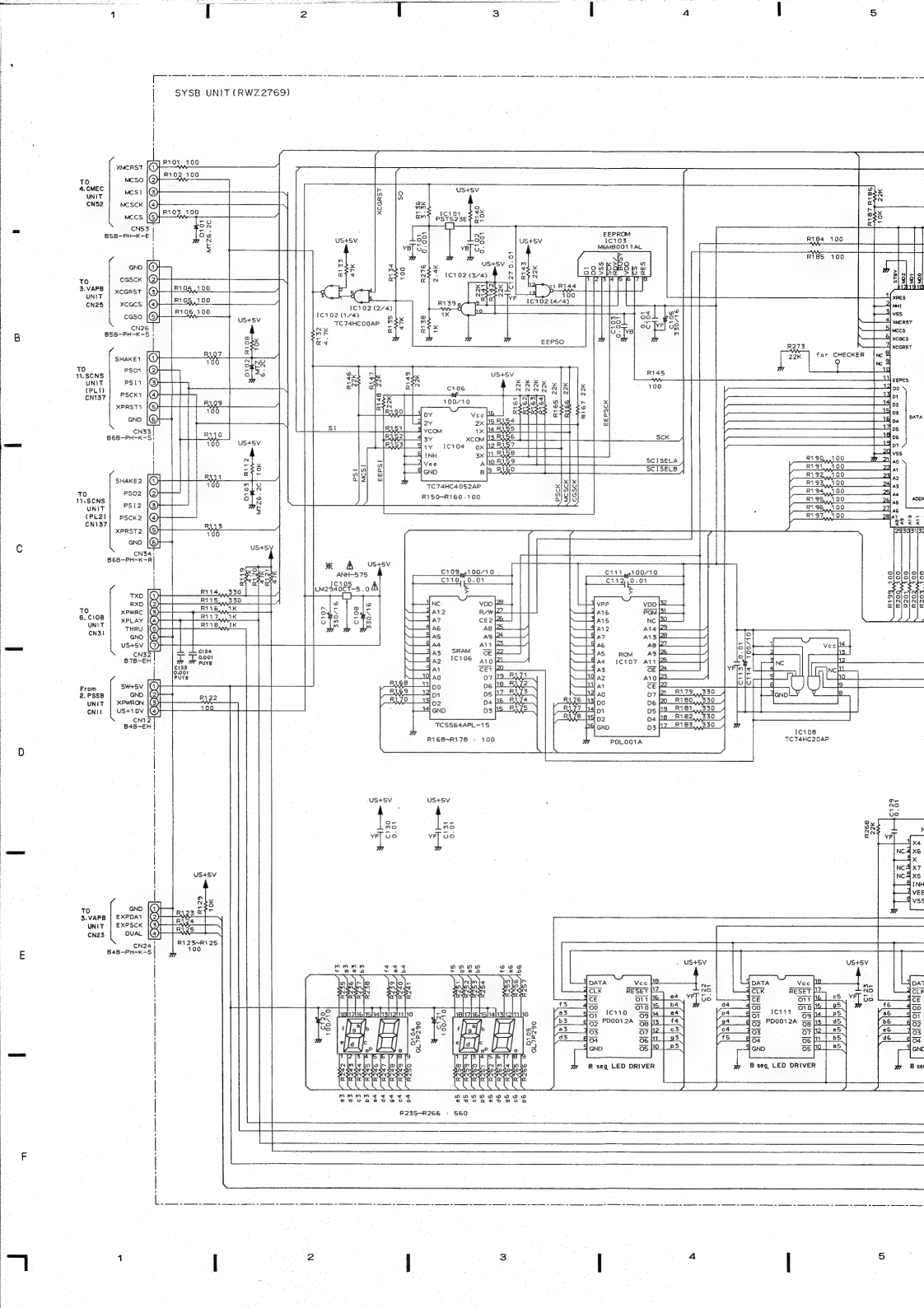
| | | | |
|---|---|---|---|
| CN54 | 1 | DOOR | 0V when the front door is open and 5V when closed. |
| | 2 | GND | 0V |

| Connector No. | No. | Normal | Voltage when the key is pressed | | | | | |
|---|---|---|---|---|---|---|---|---|
| CN35 | 2 | 5V | 1 (S301) | 2 (S302) | 3 (S303) | 4 (S304) | 5 (S305) | |
| | | | 0V | 0.89V | 1.76V | 2.51V | 3.33V | |
| | 3 | 5V | 6 (S306) | 7 (S307) | 8 (S308) | 9 (S309) | 0 (S310) | OPEN/CLOSE |
| | | | 0V | 0.89V | 1.76V | 2.51V | 3.33V | 4.12V |

## WAVEFORMS OF PNLB UNIT

SYSB RWZ2769




SYSB UNIT (RWZ2769)
TO 4.CMEC UNIT CN52
CN53
B5B-PH-K-E
TO 3.VAPB UNIT CN25
CN26
B5B-PH-K-S
TO 11.SCNS UNIT (PL1) CN137
CN33
B6B-PH-K-S
TO 11.SCNS UNIT (PL2) CN137
CN34
B6B-PH-K-S
TO 6.CIOB UNIT CN31
CN32
B7B-EH
From 2.PSSB UNIT CN11
CN12
B4B-EH
TO 3.VAPB UNIT CN23
CN24
B4B-PH-K-S
XMCRST
MCSO
MCSI
MCSCK
MCCS
GND
CGSCK
XCGRST
XCGCS
CGSO
SHAKE1
PSO1
PSI1
PSCK1
XPRST1
SHAKE2
PSO2
PSI2
PSCK2
XPRST2
TXD
RXD
XPWRC
XPLAY
THRU
SW+5V
XPWRON
US+12V
EXPDA1
EXPSCK
DUAL
US+5V
XCGRST
SO
SI
PSI
MCSI
EEPSI
EEPSCK
SCK
SCISELA
SCISELB
EEPSO
IC101 PST529E
IC102 (1/4) (2/4) (3/4) (4/4)
TC74HC00AP
IC103 M6M80011AL
EEPROM
IC104 TC74HC4052AP
IC105 LM2940CT-5.0
IC106 SRAM TC5564APL-15
IC107 ROM PDL001A
IC108 TC74HC20AP
IC110 IC111 PD0012A
8 seg. LED DRIVER
D104 D105 GL-TP290
for CHECKER
R101–R125 100
R126–R128 10K
R129–R131 10K
R132 4.7K
R133 47K
R134 100
R135 47K
R136 2.2K
R137 1K
R138 1K
R139 1K
R140 100
R141 22K
R142 22K
R143 22K
R144 100
R145 100
R146–R149 22K
R150–R160 100
R161–R167 22K
R168–R178 100
R179–R183 330
R184 100
R185 100
R187–R196 10K 22K
R197–R200 100
R201–R204 100
R205–R208 100
R209–R212 100
R213–R216 100
R217–R220 100
R221–R224 100
R225–R228 100
R229–R232 100
R233–R236 100
R237–R240 100
R241–R244 100
R245–R248 100
R249–R252 100
R253–R256 100
R257–R260 100
R261–R264 100
R265–R268 100
R269–R272 100
R273 22K
R235–R266 560
C101 0.01
C102 0.01
C103 0.01
C104 0.01
C105 330/16
C106 100/10
C107 330/16
C108 330/16
C109 100/10
C110 0.01
C111 100/10
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C975 0.01
C976 0.01
C977 0.01
C978 0.01
C979 0.01
C980 0.01
C981 0.01
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C985 0.01
C986 0.01
C987 0.01
C988 0.01
C989 0.01
C990 0.01
C991 0.01
C992 0.01
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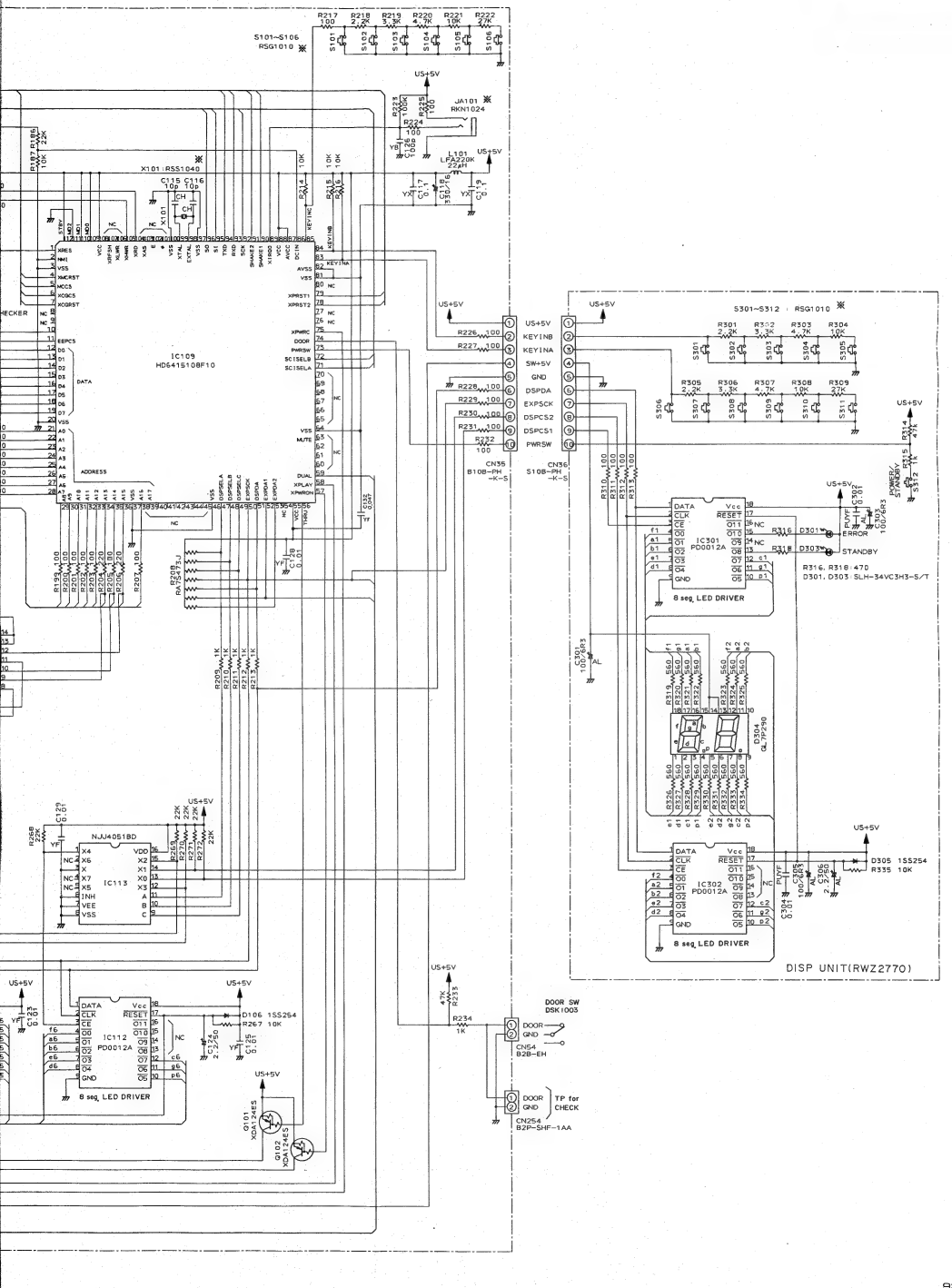
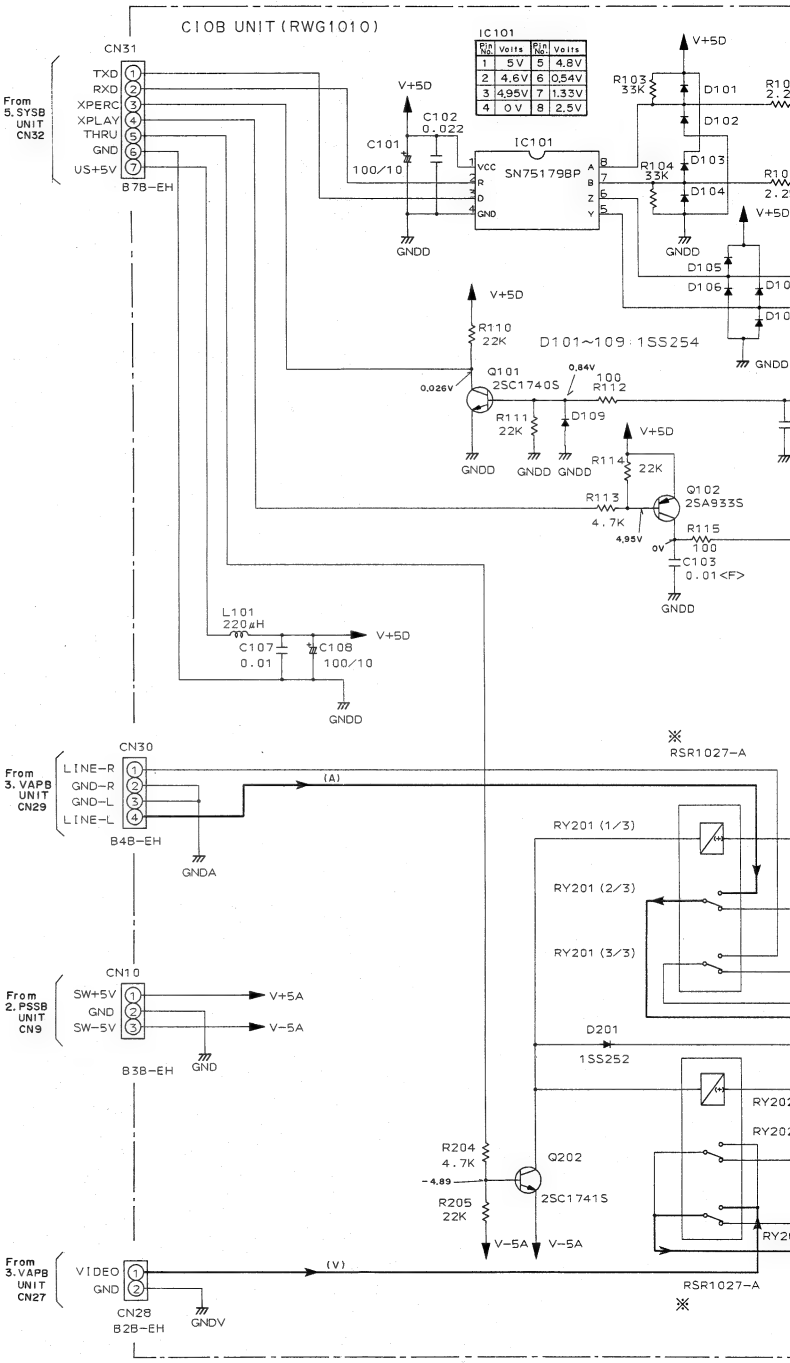
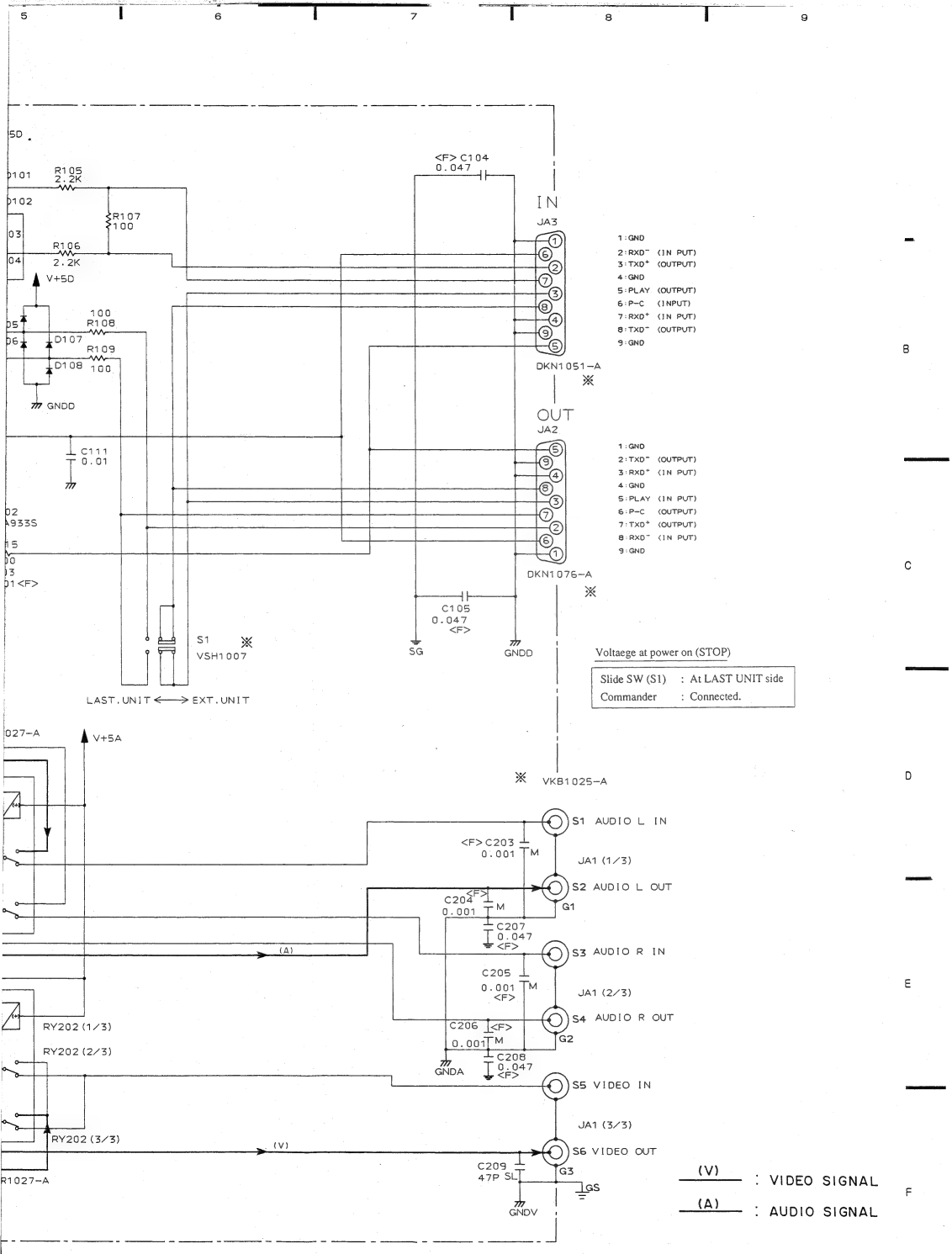
C994 0.01
C995 0.01
C996 0.01
C997 0.01
C998 0.01
C999 0.01
C1000 0.01

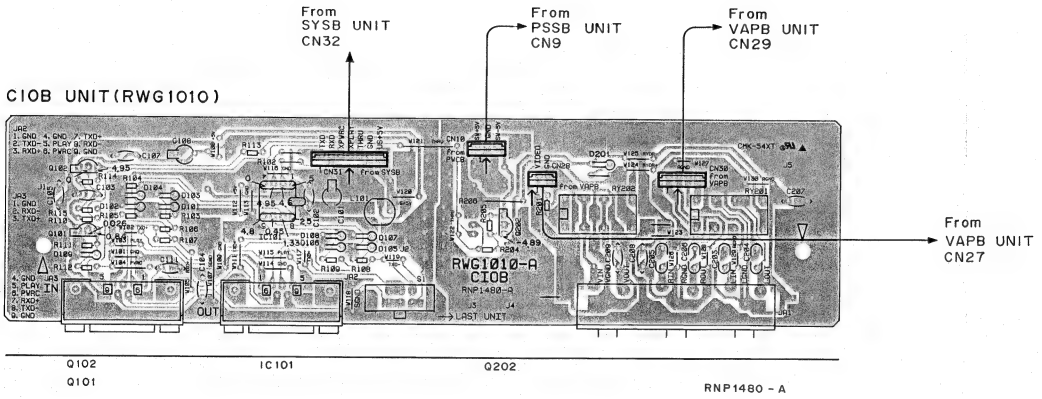

S101~S106
RSG1010
X101 : RSS1040
IC109
HD6415108F10
IC113
NJU4051BD
IC112
PD0012A
IC301
PD0012A
IC302
PD0012A
8 seg LED DRIVER
JA101
RKN1024
L101
LFA220K
S301~S312 : RSG1010
CN35
B10B-PH-K-S
CN36
S10B-PH-K-S
CN54
B2B-EH
CN254
B2P-SHF-1AA
DOOR SW
DSK1003
DOOR
GND
TP for
CHECK
STANDBY
ERROR
D304
GL79290
D305 1SS254
D106 1SS254
Q101
XP124ES
Q102
XP124ES
DISP UNIT(RWZ2770)

## 6. CIOB UNIT


CIOB UNIT (RWG1010)
CN31
From 5. SYSB UNIT CN32
TXD
RXD
XPERC
XPLAY
THRU
GND
US+5V
B7B-EH
IC101
SN75179BP
V+5D
GNDD
C101 100/10
C102 0.022
R103 33K
R104 33K
D101
D102
D103
D104
D105
D106
D101~109 : 1SS254
R110 22K
Q101 2SC1740S
0.026V
0.84V
R112 100
R111 22K
D109
R114 22K
Q102 2SA933S
R113 4.7K
4.95V
R115 100
C103 0.01<F>
L101 220μH
C107 0.01
C108 100/10
CN30
From 3. VAPB UNIT CN29
LINE-R
GND-R
GND-L
LINE-L
B4B-EH
GNDA
(A)
RSR1027-A
RY201 (1/3)
RY201 (2/3)
RY201 (3/3)
D201
1SS252
CN10
From 2. PSSB UNIT CN9
SW+5V
GND
SW-5V
B3B-EH
V+5A
V-5A
R204 4.7K
R205 22K
Q202
2SC1741S
-4.89
From 3. VAPB UNIT CN27
VIDEO
GND
CN28
B2B-EH
GNDV
(V)


R105 2.2K
R107 100
R106 2.2K
V+5D
100 R108
D107
R109 100
D108
GNDD
C111 0.01
<F> C104 0.047
IN
JA3
1:GND
2:RXD⁻ (IN PUT)
3:TXD⁺ (OUTPUT)
4:GND
5:PLAY (OUTPUT)
6:P-C (INPUT)
7:RXD⁺ (IN PUT)
8:TXD⁻ (OUTPUT)
9:GND
DKN1051-A
※
OUT
JA2
1:GND
2:TXD⁻ (OUTPUT)
3:RXD⁺ (IN PUT)
4:GND
5:PLAY (IN PUT)
6:P-C (OUTPUT)
7:TXD⁺ (OUTPUT)
8:RXD⁻ (IN PUT)
9:GND
DKN1076-A
※
C105 0.047 <F>
SG
GNDD
S1 ※ VSH1007
LAST.UNIT ⟷ EXT.UNIT
Voltaege at power on (STOP)
Slide SW (S1) : At LAST UNIT side
Commander : Connected.
V+5A
※ VKB1025-A
S1 AUDIO L IN
<F> C203 0.001 M
JA1 (1/3)
S2 AUDIO L OUT
C204 <F> 0.001 M
G1
C207 0.047 <F>
S3 AUDIO R IN
C205 0.001 M <F>
JA1 (2/3)
S4 AUDIO R OUT
C206 <F> 0.001 M
G2
GNDA
C208 0.047 <F>
S5 VIDEO IN
JA1 (3/3)
S6 VIDEO OUT
C209 47P SL
G3
GS
GNDV
RY202 (1/3)
RY202 (2/3)
RY202 (3/3)
(A)
(V)
(V) : VIDEO SIGNAL
(A) : AUDIO SIGNAL

• View from component side



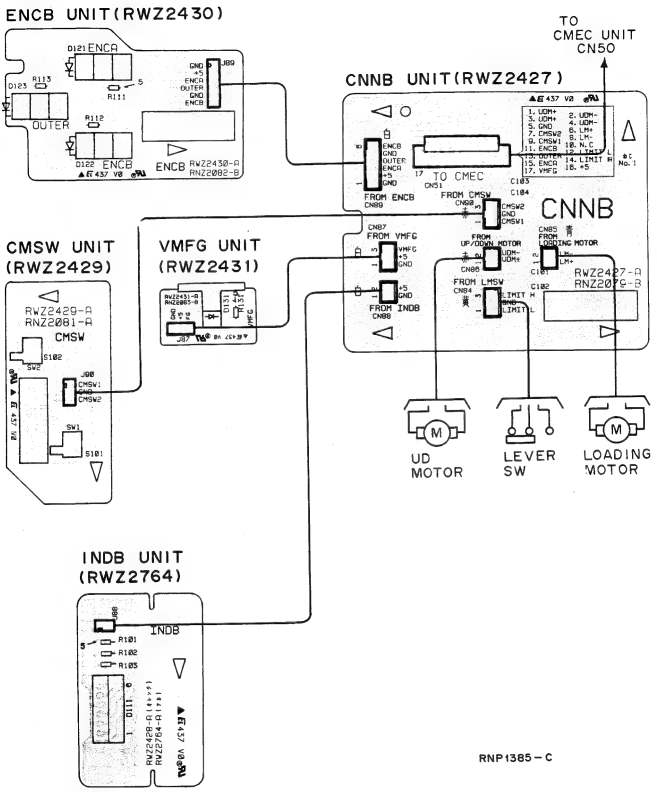
• View from soldering side

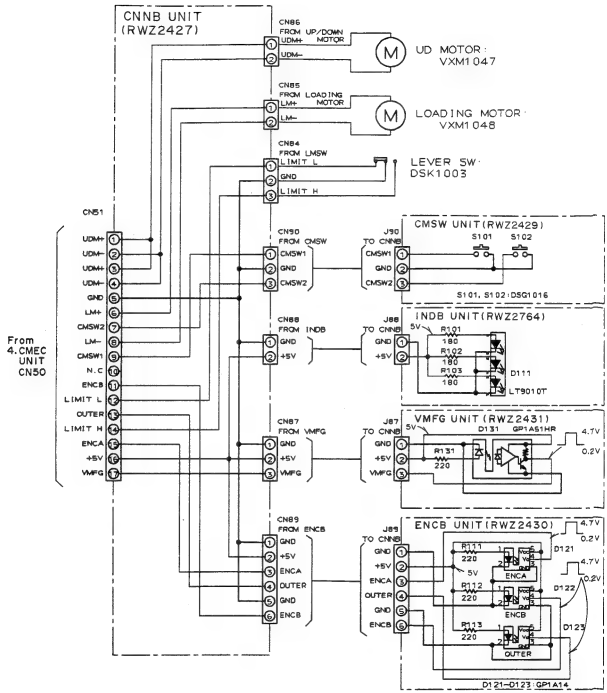
## 7. CNNB, CMSW, INDB, ENCB AND VMFG UNIT

• View from soldering side

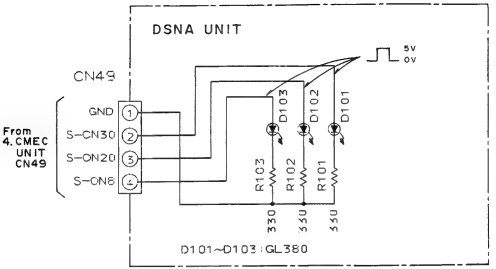
## 7. CNNB, CMSW, INDB, ENCB AND VMFG UNIT

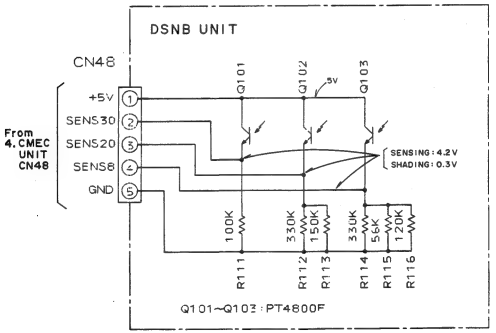
• View from component side




CNNB UNIT
(RWZ2427)
CN86
FROM UP/DOWN MOTOR
UDM+
UDM-
UD MOTOR :
VXM1047
CN85
FROM LOADING MOTOR
LM+
LM-
LOADING MOTOR
VXM1048
CN84
FROM LMSW
LIMIT L
GND
LIMIT H
LEVER SW :
DSK1003
CN51
From 4.CMEC UNIT CN50
UDM+
UDM-
UDM+
UDM-
GND
LM+
CMSW2
LM-
CMSW1
N.C
ENCB
LIMIT L
OUTER
LIMIT H
ENCA
+5V
VMFG
CN90
FROM CMSW
CMSW1
GND
CMSW2
J90
TO CNNB
CMSW UNIT(RWZ2429)
S101
S102
S101, S102 : DSG1016
CN88
FROM INDB
GND
+5V
J88
TO CNNB
INDB UNIT(RWZ2764)
5V
R101
180
R102
180
R103
180
D111
LT9010T
CN87
FROM VMFG
GND
+5V
VMFG
J87
TO CNNB
VMFG UNIT(RWZ2431)
D131
GP1A57HR
R131
220
4.7V
0.2V
CN89
FROM ENCB
GND
+5V
ENCA
OUTER
GND
ENCB
J89
TO CNNB
ENCB UNIT(RWZ2430)
R111
220
R112
220
R113
220
D121
D122
D123
ENCA
ENCB
OUTER
D121-0123 GP1A14

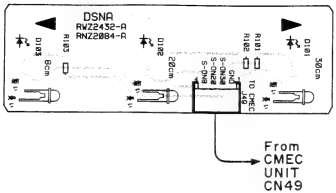
## 8. DSNA AND DSNB UNIT



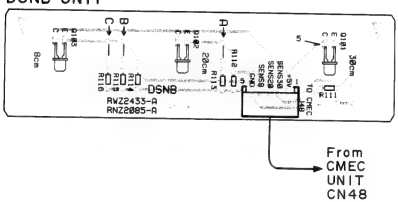



• View from component side

DSNA UNIT




DSNB UNIT




RNP1390-A

• View from soldering side

DSNA UNIT



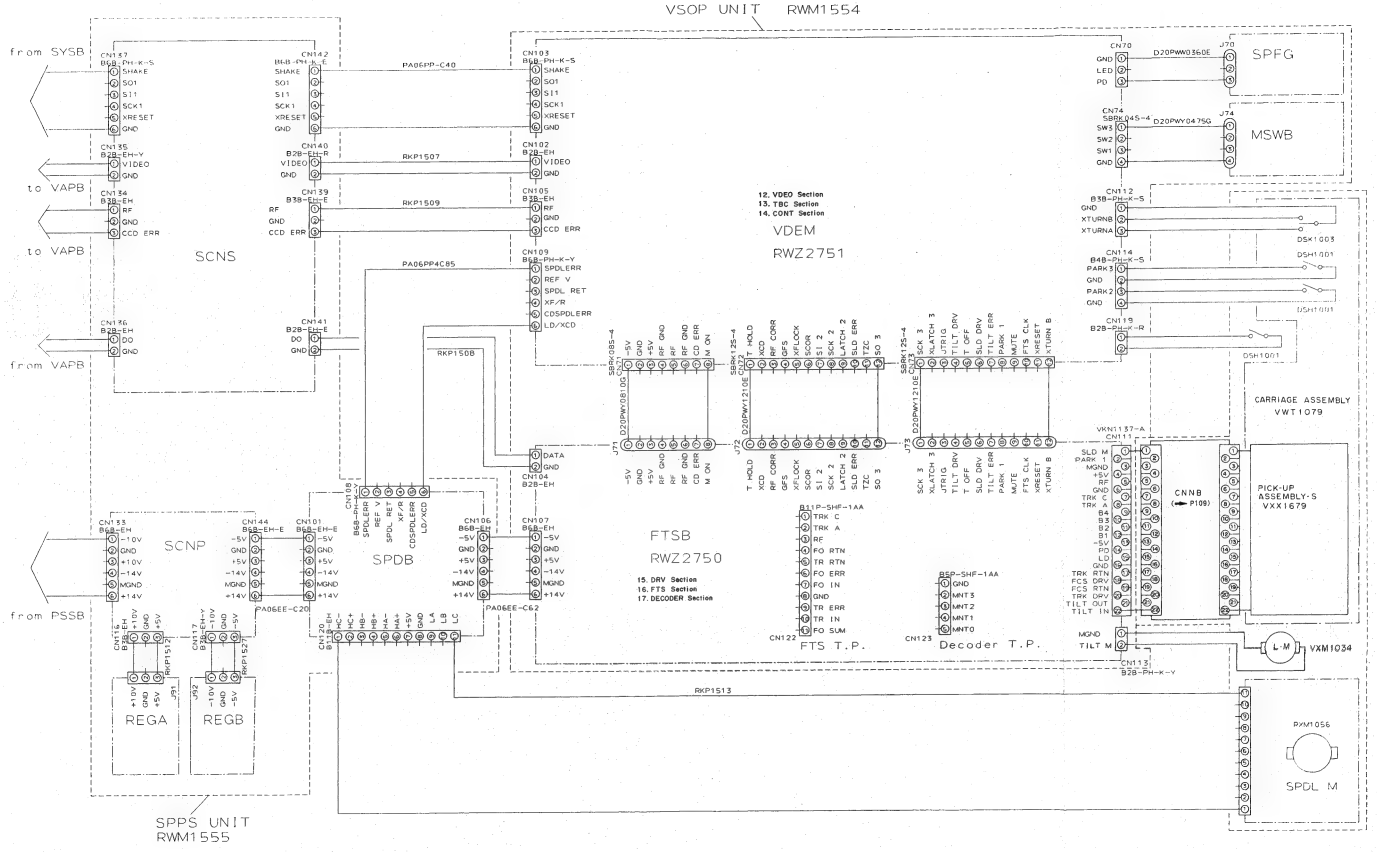

DSNB UNIT



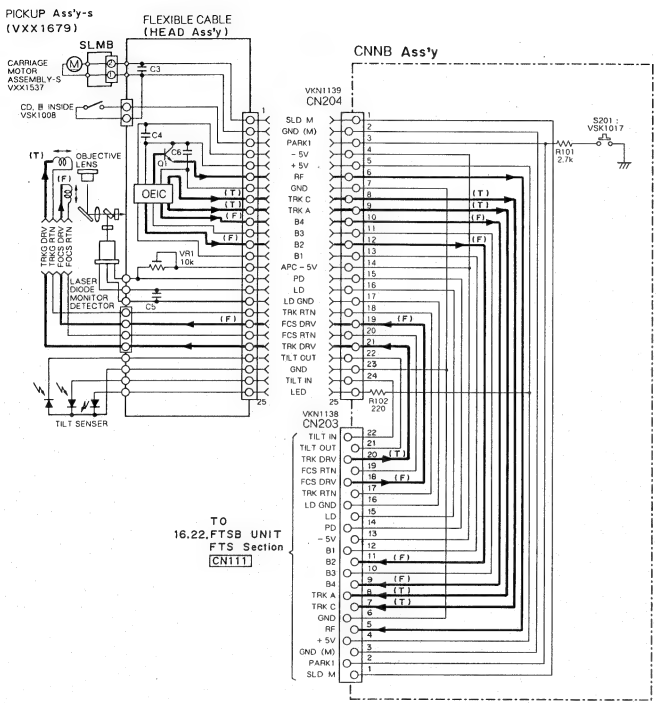

RMP1330-A

## 9. OVERALL WIRING DIAGRAM (CLD PLAYER SECTION) CLD-LCV200 ONLY

**Note** : This is the CLD player section for LC-V200/KUC.

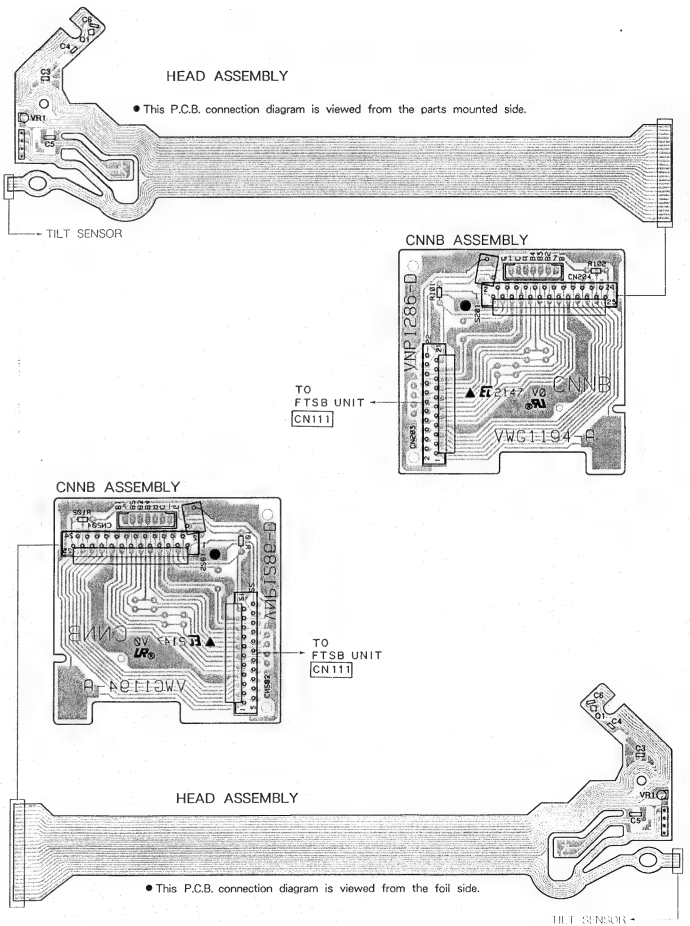


## 10. PICKUP AND CNNB ASSEMBLY




: RF SIGNAL
(F) : FOCUS SERVO SIGNAL
(T) : TRACKING SERVO SIGNAL

• View from component side



• View from soldering side







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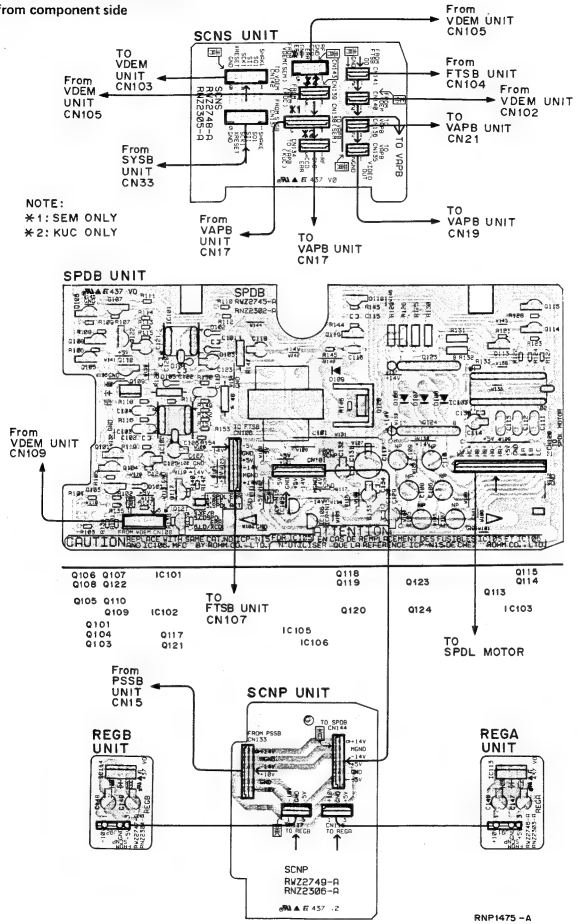
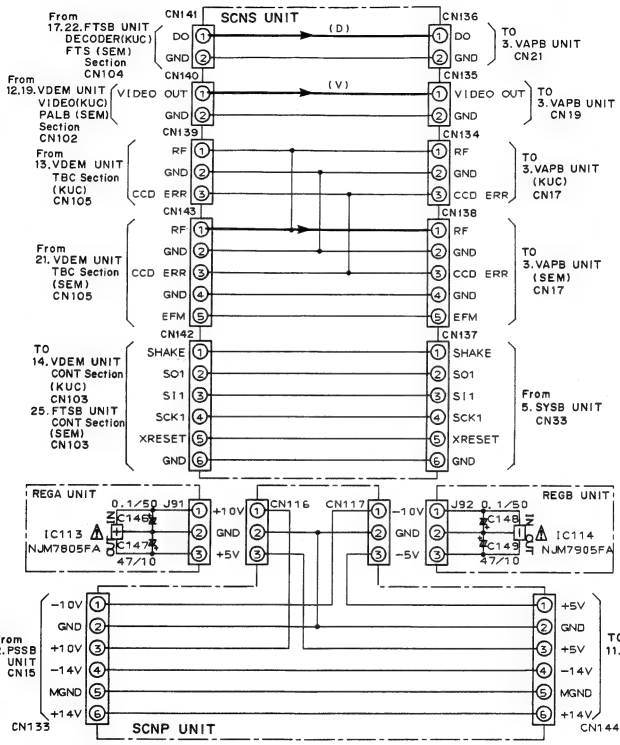
## 11. REGA, REGB, SCNS, SCNP AND SPDB UNIT

- View from component side

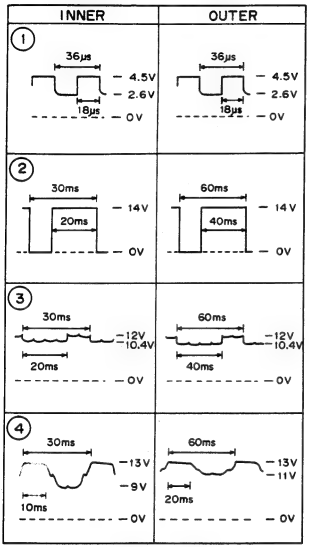



SCNS UNIT
CN141
CN140
CN139
CN143
CN142
CN136
CN135
CN134
CN138
CN137
From 17.22.FTSB UNIT DECODER(KUC) FTS (SEM) Section CN104
From 12.19.VDEM UNIT VIDEO(KUC) PALB (SEM) Section CN102
From 13.VDEM UNIT TBC Section (KUC) CN105
From 21.VDEM UNIT TBC Section (SEM) CN105
TO 14.VDEM UNIT CONT Section (KUC) CN103
25.FTSB UNIT CONT Section (SEM) CN103
DO
GND
VIDEO OUT
RF
CCD ERR
SHAKE
SO1
SI1
SCK1
XRESET
EFM
(D)
(V)
TO 3.VAPB UNIT CN21
TO 3.VAPB UNIT CN19
TO 3.VAPB UNIT (KUC) CN17
TO 3.VAPB UNIT (SEM) CN17
From 5.SYSB UNIT CN33
REGA UNIT
REGB UNIT
IC113 NJM7805FA
IC114 NJM7905FA
J91
J92
0.1/50
47/10
+10V
-10V
+5V
-5V
CN116
CN117
From 2.PSSB UNIT CN15
TO 11.SPDB UNIT CN101
CN133
CN144
SCNP UNIT
: DIGITAL AUDIO SIGNAL
: VIDEO SIGNAL
: RF SIGNAL

## WAVEFORMS OF SPDB UNIT

*1

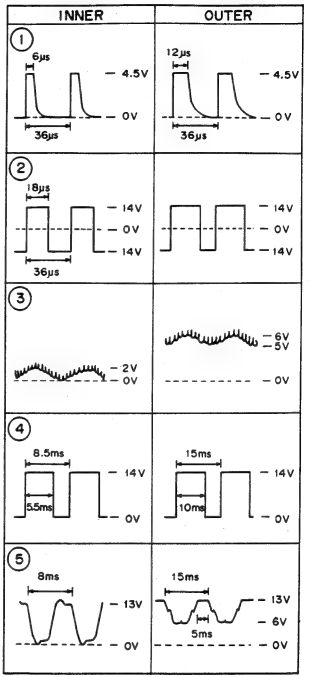
VOLTAGE AND WAVEFORM WHEN PLAYING BACK CD.




Waveform (1) is the same at the inner circumference and the outer circumference.
The periods at the inner and outer circumference of waveforms (2) to (4) change continuously.
Those described here are reference values.

*2

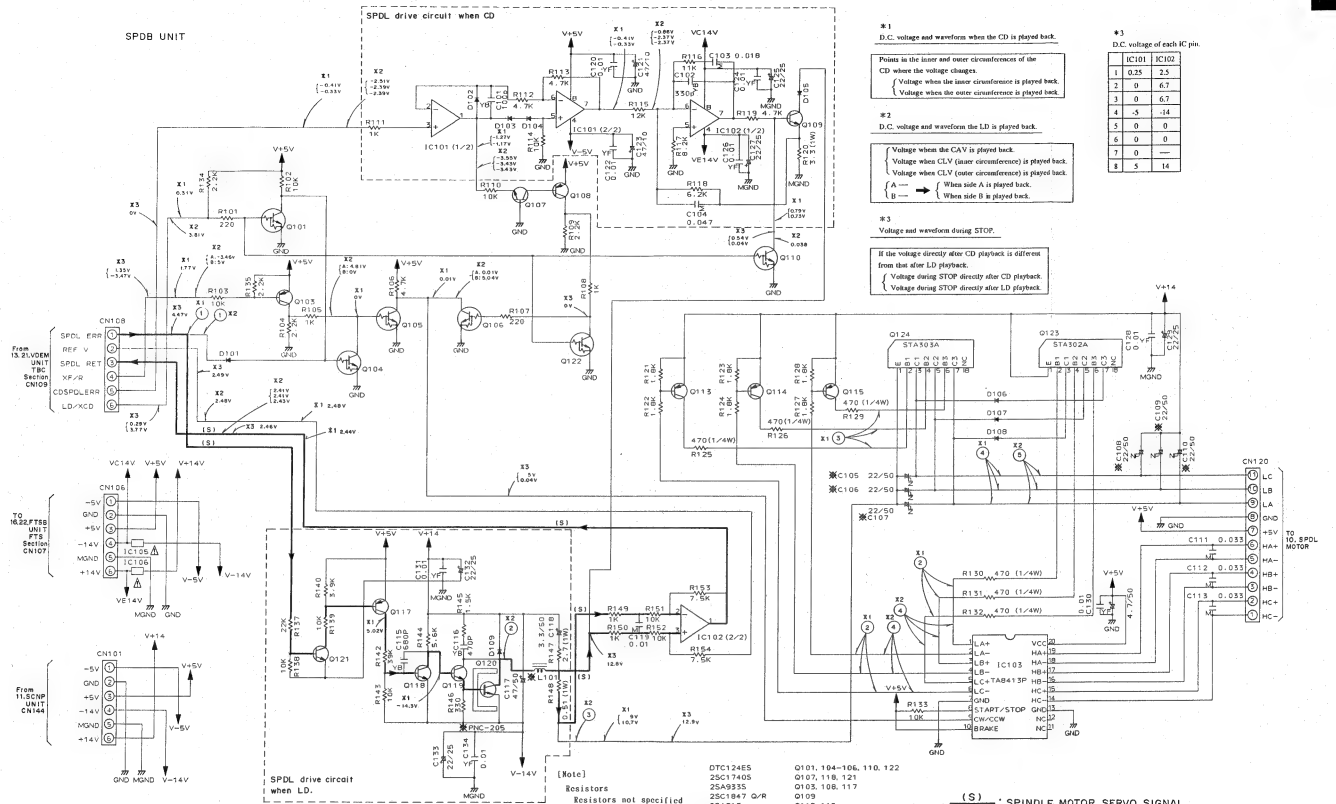
VOLTAGE AND WAVEFORM WHEN PLAYING BACK LD.




*2

VOLTAGE AND WAVEFORM WHEN PLAYING BACK LD.

(The voltage and waveform described here are when 20cm CLV disc is used.
The waveform for the CAV disc is the same as the inner circumference waveform of the CLV disc above.)

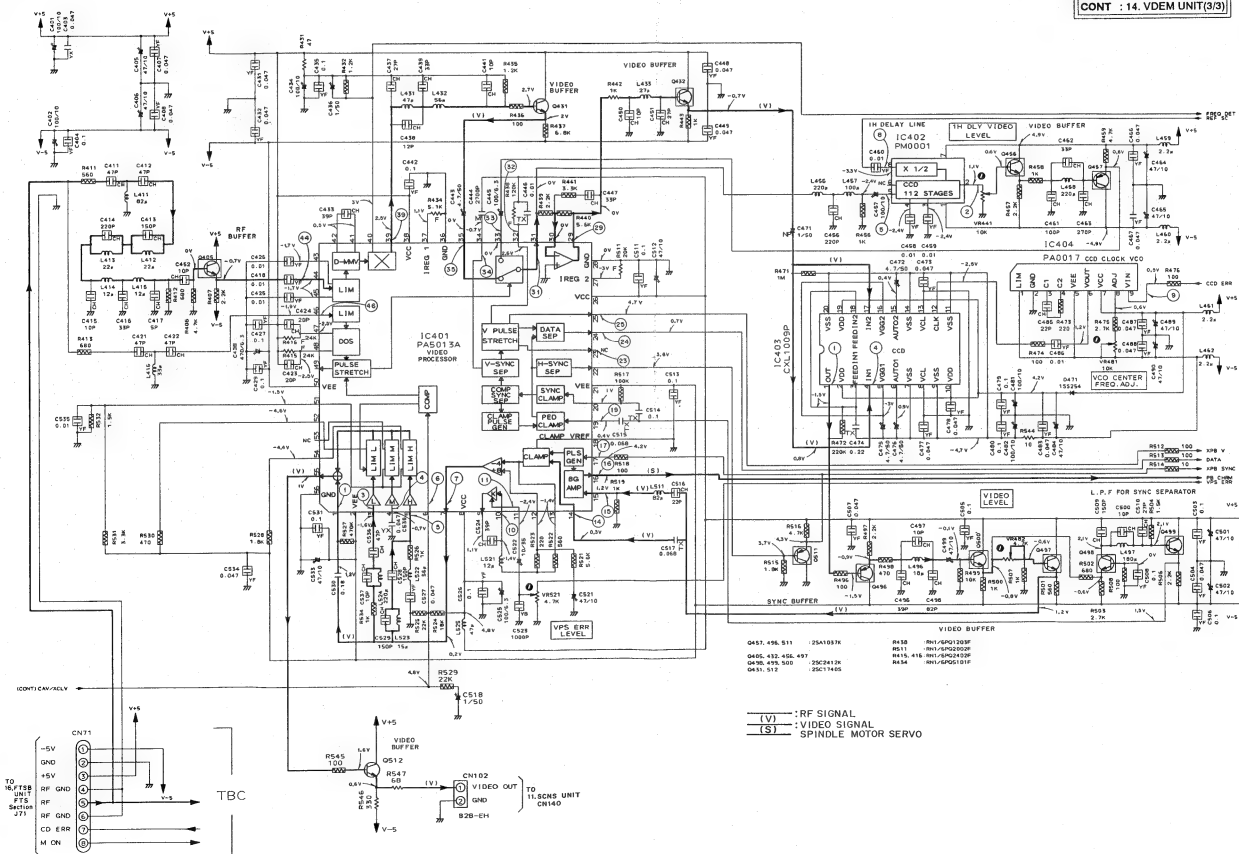

SPDB UNIT
SPDL drive circuit when CD
SPDL drive circuit when LD.
*1
D.C. voltage and waveform when the CD is played back.
Points in the inner and outer circumferences of the CD where the voltage changes.
Voltage when the inner circumference is played back.
Voltage when the outer circumference is played back.
*2
D.C. voltage and waveform when the LD is played back.
Voltage when the CAV is played back.
Voltage when CLV (inner circumference) is played back.
Voltage when CLV (outer circumference) is played back.
A ---- When side A is played back.
B ---- When side B is played back.
*3
Voltage and waveform during STOP.
If the voltage directly after CD playback is different from that after LD playback.
Voltage during STOP directly after CD playback.
Voltage during STOP directly after LD playback.
*3
D.C. voltage of each IC pin.
IC101 IC102
1 0.25 2.5
2 0 6.7
3 0 6.7
4 -5 -14
5 0 0
6 0 0
7 0 —
8 5 14
From 13.21.VDEM UNIT TBC Section CN109
SPDL ERR
REF V
SPDL RET
XF/R
CDSPOLERR
LD/XCD
TO 16.22.FTSB UNIT FTS Section CN107
From 11.SCNP UNIT CN144
TO 10.SPDL MOTOR
CN120
LC
LB
LA
GND
+5V
HA+
HA-
HB+
HB-
HC+
HC-
IC103 TAB413P
LA+
LA-
LB+
LB-
LC+
LC-
GND
START/STOP
CW/CCW
BRAKE
VCC
HA+
HA-
HB+
HB-
HC+
HC-
GND
NC
NC
NC
(S) : SPINDLE MOTOR SERVO SIGNAL
[Note]
Resistors
Resistors not specified are 1/8W.
Capacitors
YF : CKPUYF
YB : CKPUYB or CKCYB
M : CQMA
DTC124ES Q101, 104-106, 110, 122
2SC1740S Q107, 118, 121
2SA933S Q103, 108, 117
2SC1847 Q/R Q109
2SA817 Q113-115
2SC1627 Y Q119
2SD1267 P/Q Q120
1SS254 D101-104
11E52 D105
S3V10-4002P7.5 D106-108
S2K20 D109
BA15218 IC101, 102
TAB413P IC103
ICP-N15 IC105, 106
VCH1091-A-F C105-110
CAUTION FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE NO. ICP-N15, MFD BY ROHM CO., LTD FOR IC105 AND IC106.

## 12. VDEM (1/3) (VIDEO Section)

VDEM UNIT (RWZ2751)
•VIDEO Section

**Note :** Indicates connection destination of other circuit diagrams.

| | |
|---|---|
| VIDEO | : 12. VDEM UNIT(1/3) |
| TBC | : 13. VDEM UNIT(2/3) |
| CONT | : 14. VDEM UNIT(3/3) |



## WAVEFORMS OF VDEM UNIT (1/3)

### VIDEO Section

IC401 (PA5013A)

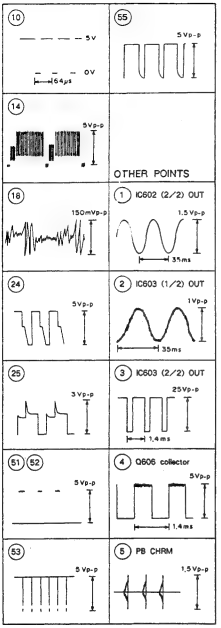
IC403(CXL1009P)

| | | | | |
|---|---|---|---|---|
| ① 1.4Vp-p | ⑪ 1V/div 2mS/div | ㉕ 5Vp-p | ㊴ approx. 1.2Vp-p | ① 700mVp-p |
| ③ 2Vp-p | ⑭ 350mVp-p | ㉙ 700mVp-p | ㊹ 600mVp-p 35mS | ④ 700mVp-p |
| ④ 200mVp-p | ⑮ 200mVp-p | ㉛ 600mVp-p | ㊻ 1.6Vp-p | |
| ⑤ 600mVp-p | ⑯ 63.5μS | ㉜ 4Vp-p 17.5mS | IC402 (PM0001) | IC404(PA0017 – P) |
| ⑥ 1.6Vp-p | ⑰ 4Vp-p 63.5μS | ㉝ 500mVp-p | ② 680mVp-p | ⑨ 400mVp-p |
| ⑦ 1.4Vp-p | ⑱ 2Vp-p | ㉞ 2.5Vp-p | ⑤ 500mVp-p | |
| ⑩ 350mVp-p | ㉓㉔ 3.6Vp-p | ㉟ 600mVp-p | ⑧ 0.3μS 450mVp-p | |

## WAVEFORMS OF VDEM UNIT (2/3)

### TBC Section

IC601 (PM3002)

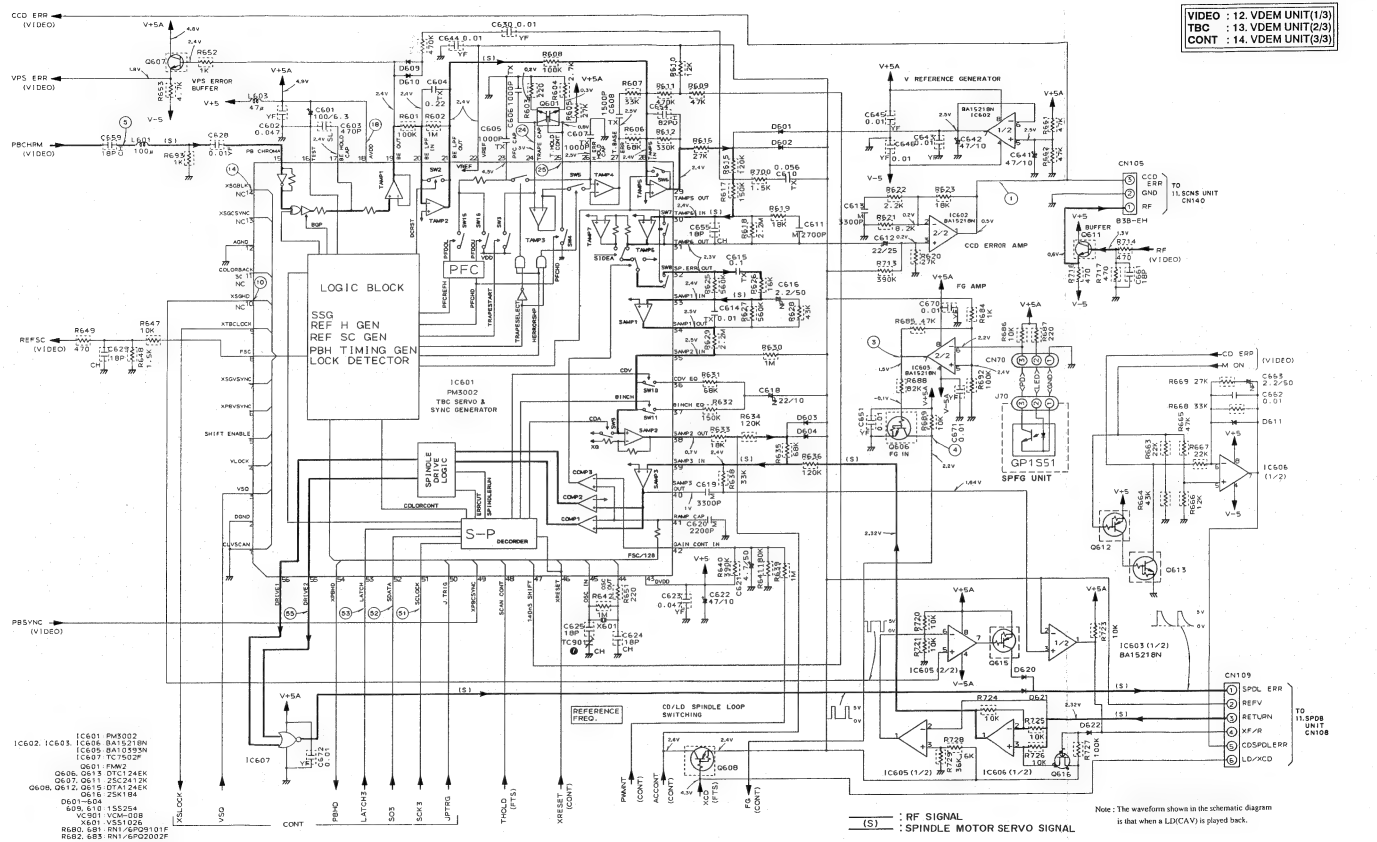


## 13. VDEM UNIT (2/3) AND SPFG UNIT (TBC Section)

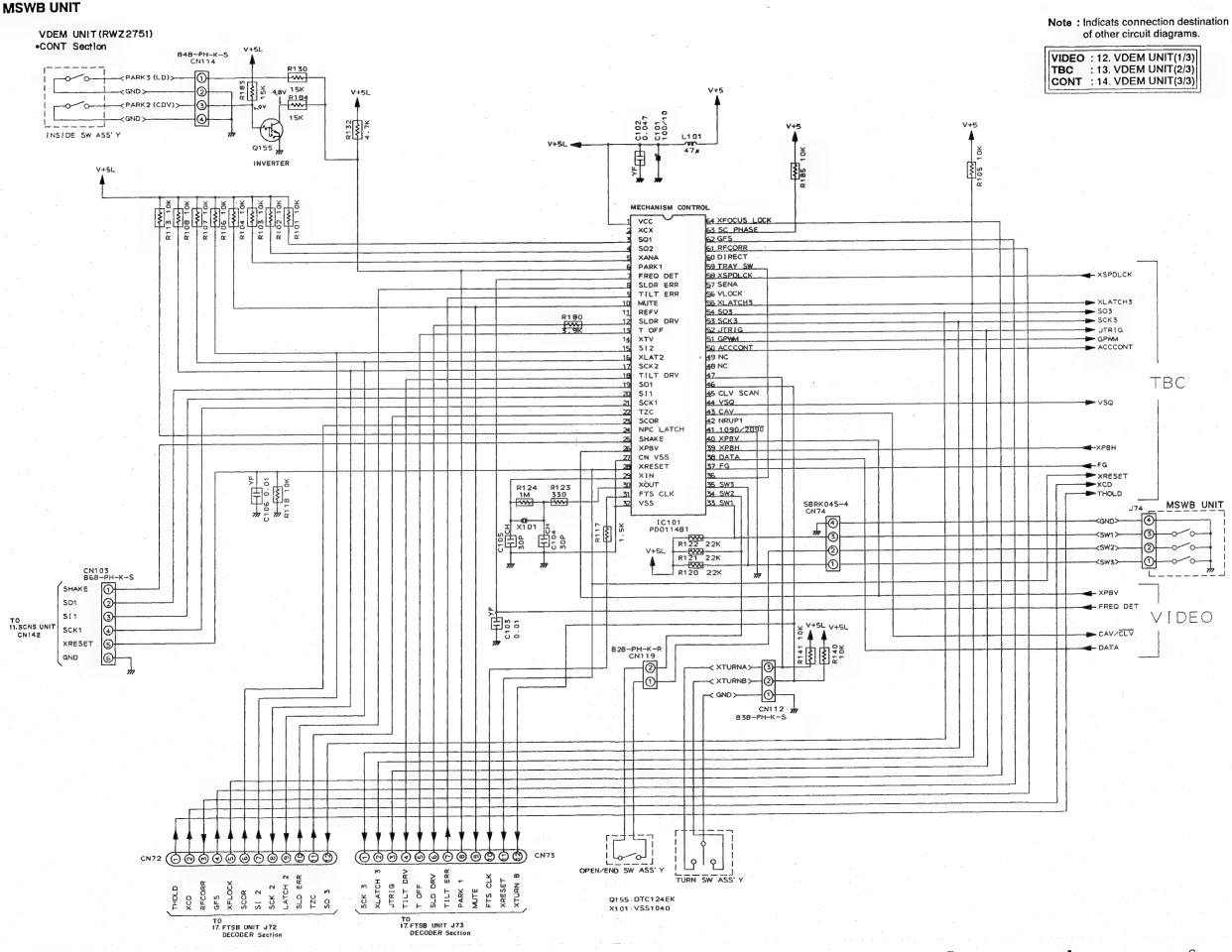
VDEM UNIT(RWZ2751) •TBC Section

Note : Indicats connection destination of other circuit diagrams.

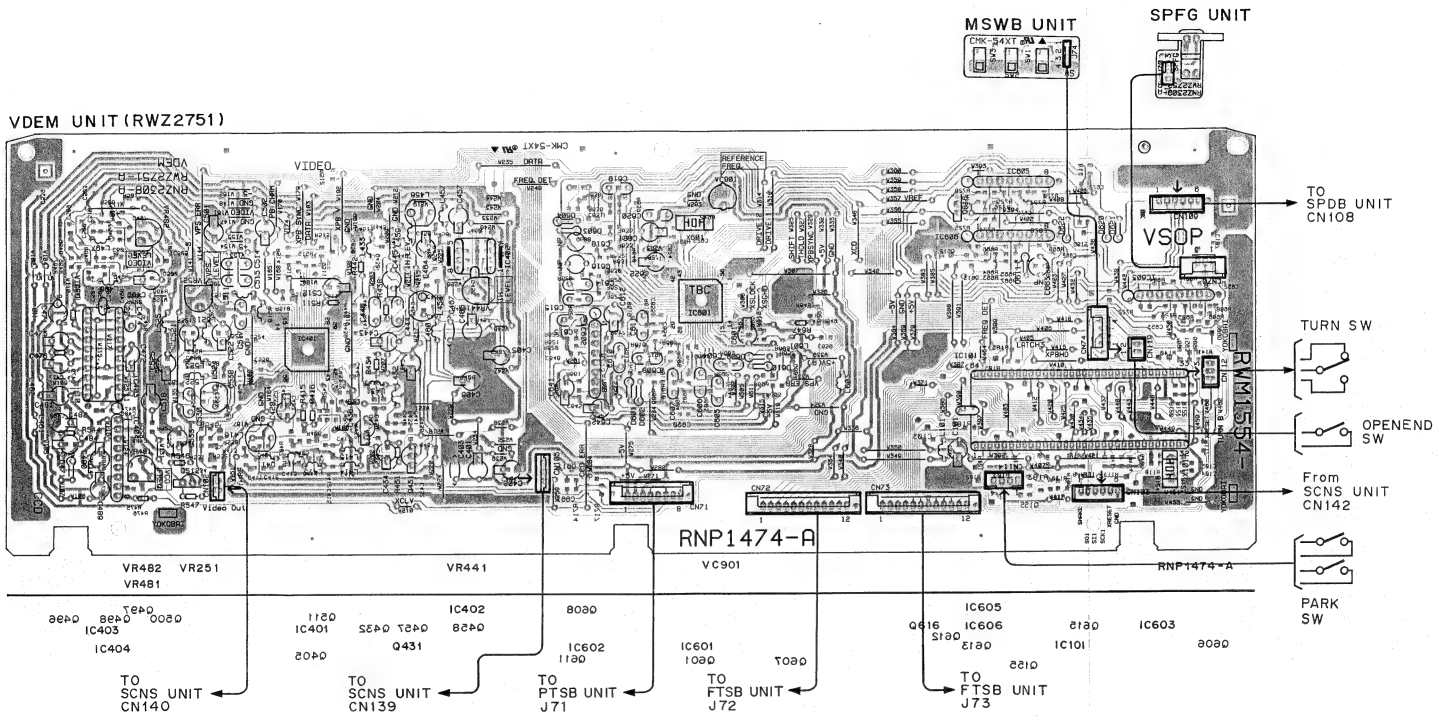
| | |
|---|---|
| VIDEO | : 12. VDEM UNIT(1/3) |
| TBC | : 13. VDEM UNIT(2/3) |
| CONT | : 14. VDEM UNIT(3/3) |



## 14. VDEM (3/3) AND MSWB UNIT (CONT Section)



• View from component side



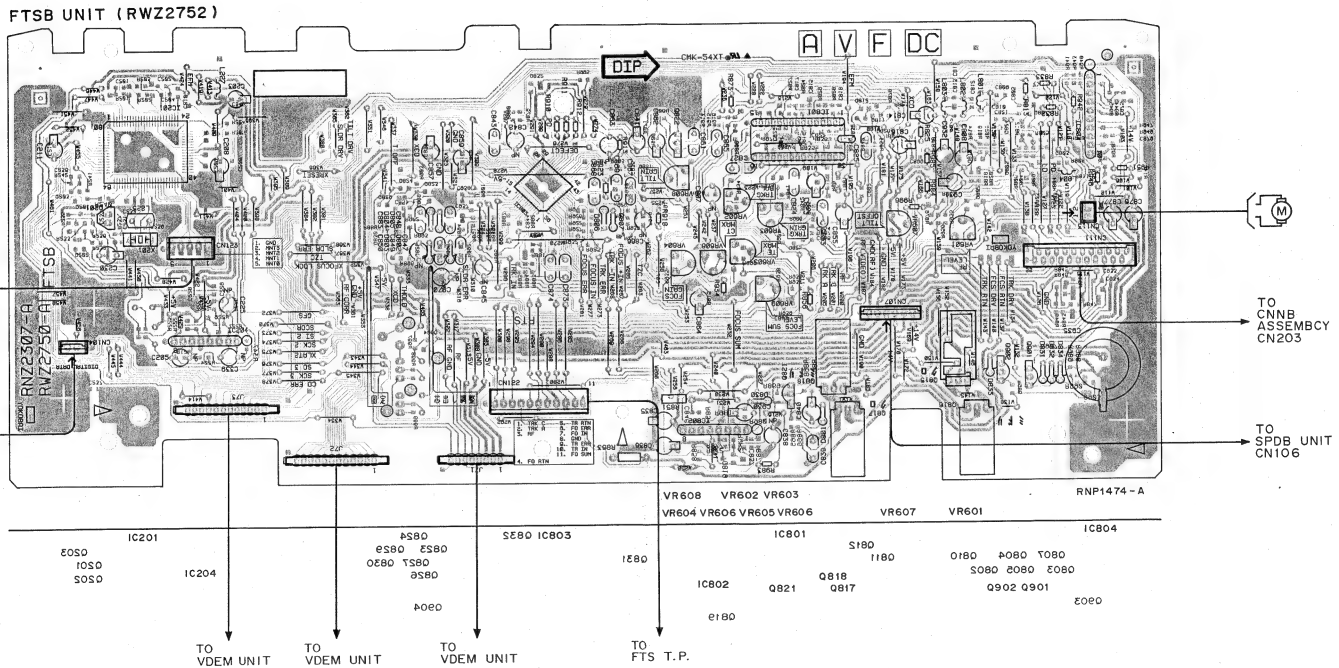
• View from soldering side

• View from soldering side

FTSB UNIT (RW22752)

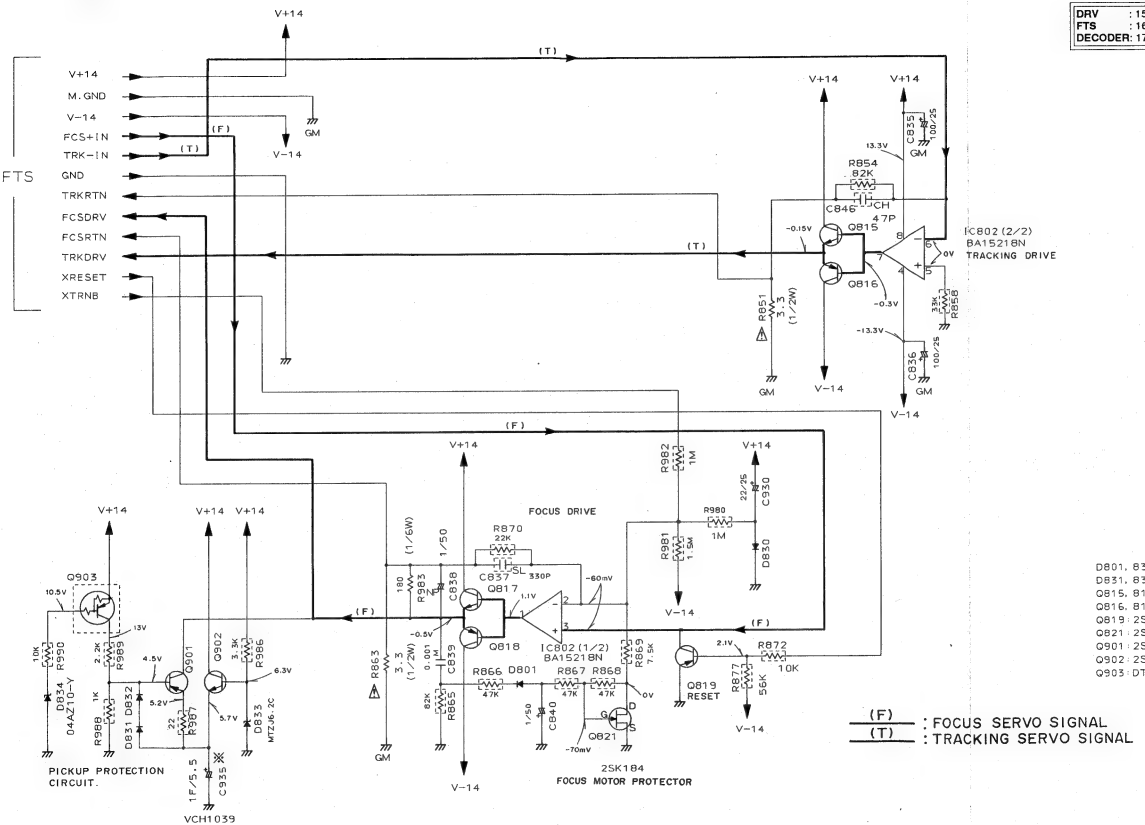
FTSB UNIT

• View from component side



## 15. FTSB UNIT (1/3) (DRV Section)

FTSB UNIT (RWZ2750)
•DRV Section

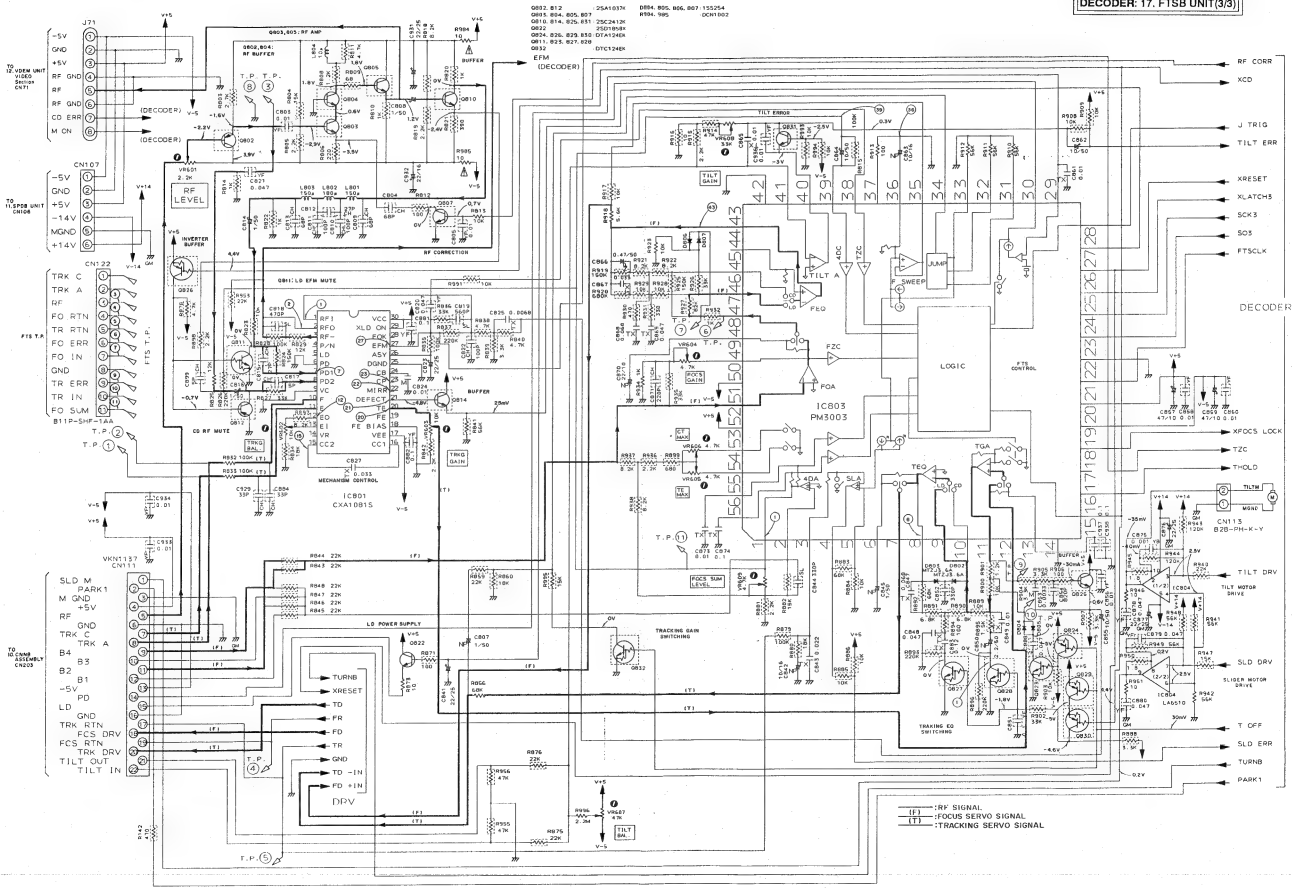


## 16. FTSB UNIT (2/3) (FTS Section)

FTSB UNIT(RWZ275G)
•FTS Section

Note : Indicates connection destination of other circuit diagrams.

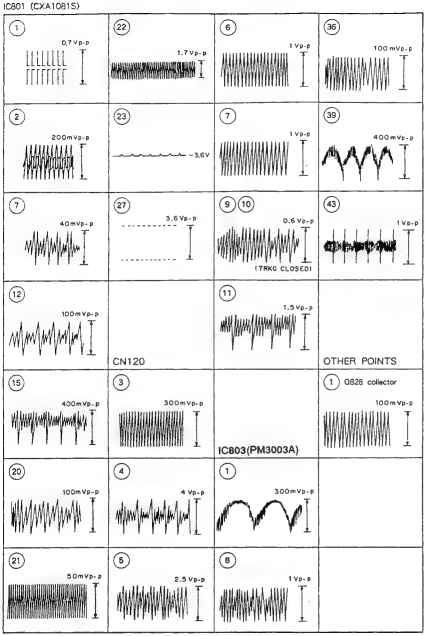
| | |
|---|---|
| DRV | : 15. FTSB UNIT(1/3) |
| FTS | : 16. FTSB UNIT(2/3) |
| DECODER | : 17. FTSB UNIT(3/3) |



## WAVEFORMS OF FTSB UNIT (2/3)

### FTS Section

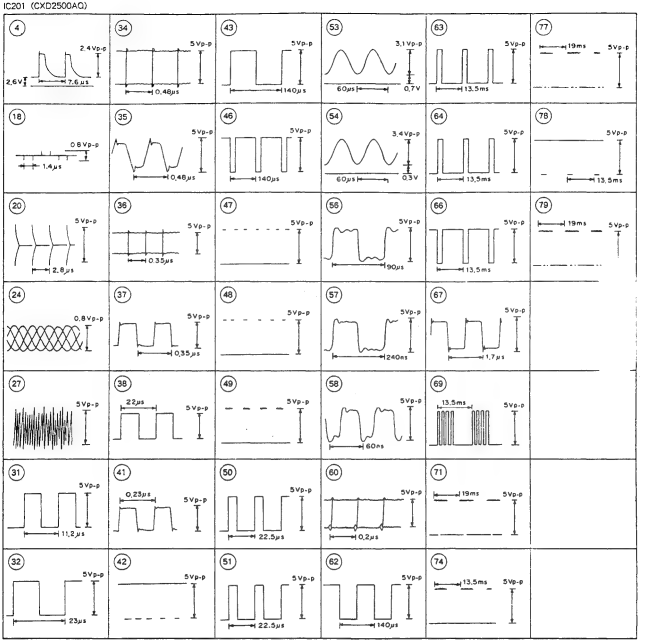
IC801 (CXA1081S)



## WAVEFORMS OF FTSB UNIT (3/3)

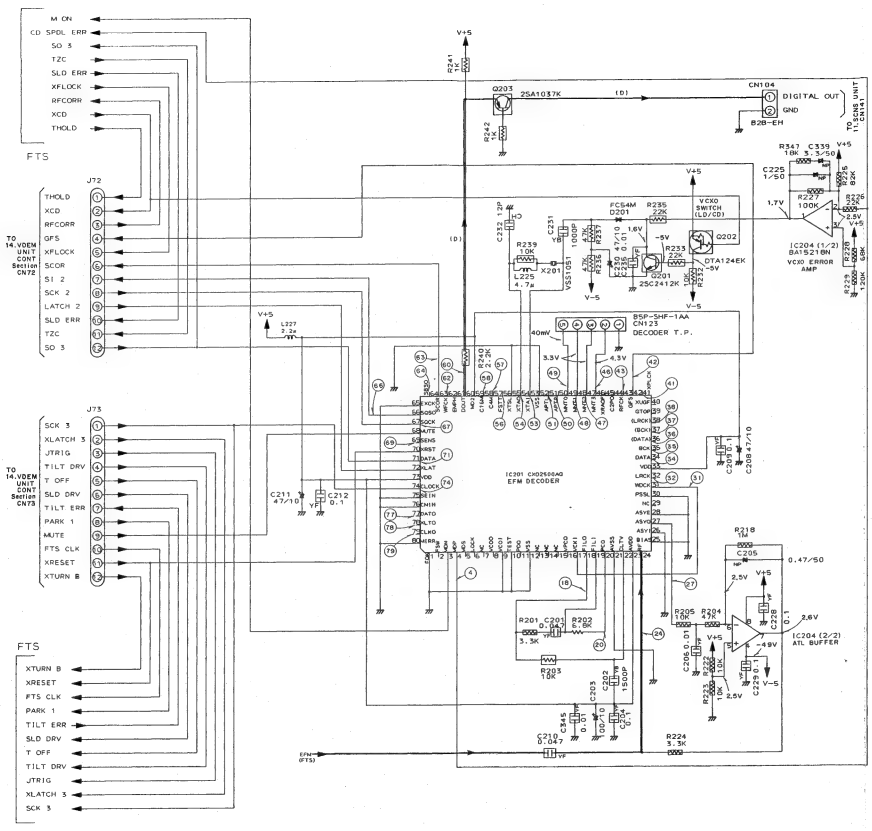
### DECODER Section

IC201 (CXD2500AQ)



## 17. FTSB UNIT (3/3) (DECODER Section)

FTSB UNIT(RWZ2750)
•DECODER Section



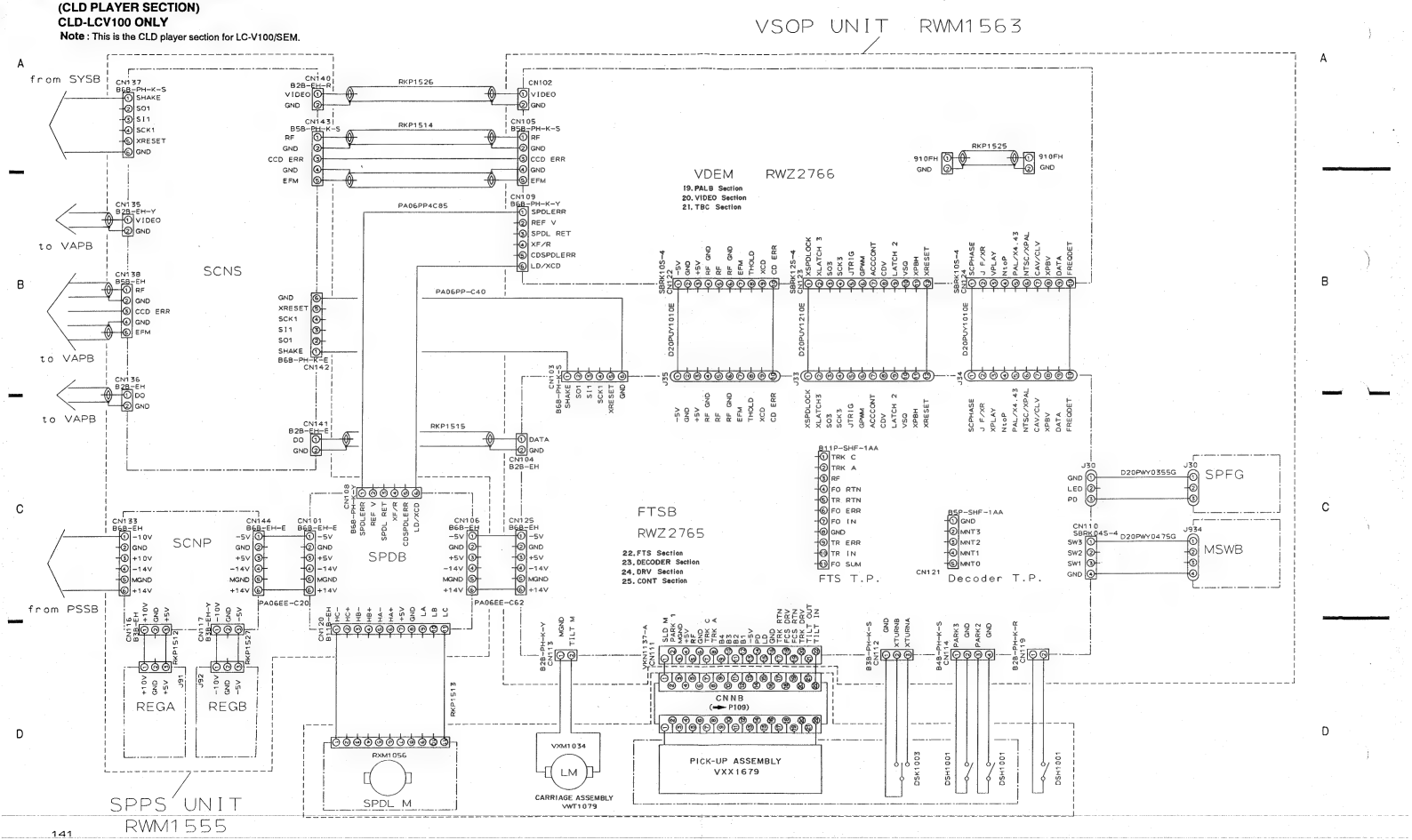

**Note :** Indicats connection destination of other circuit diagrams.

| | |
|---|---|
| DRV | : 15. FTSB UNIT(1/3) |
| FTS | : 16. FTSB UNIT(2/3) |
| DECODER | : 17. FTSB UNIT(3/3) |

(D) : RF SIGNAL
: DIGITAL AUDIO SIGNAL

## 18. OVERALL WIRING DIAGRAM (CLD PLAYER SECTION) CLD-LCV100 ONLY

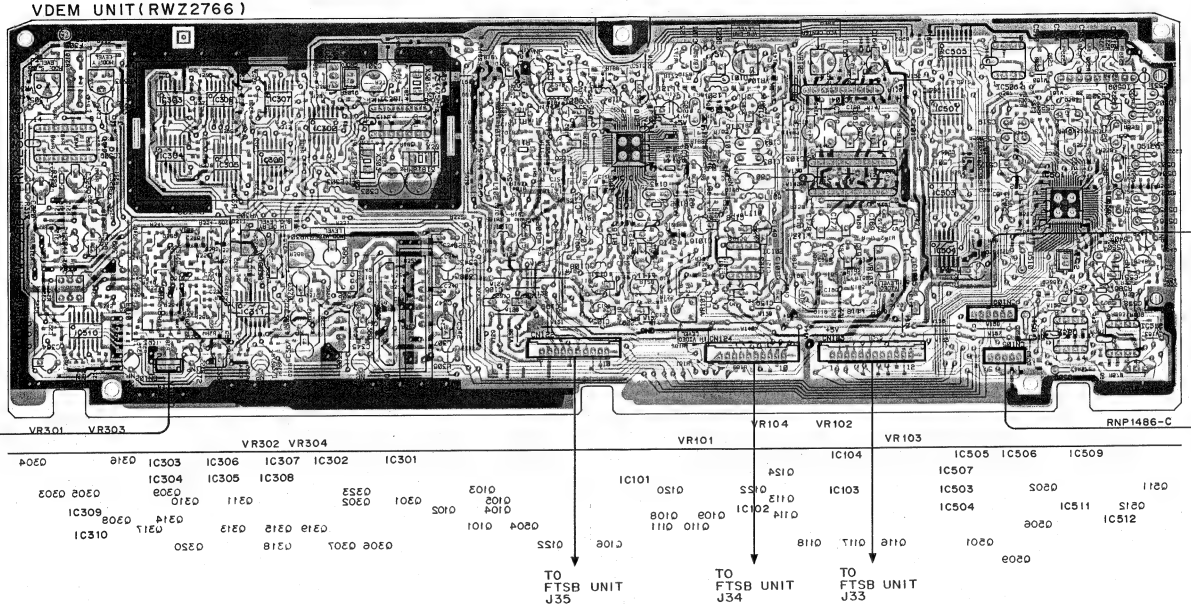
**Note :** This is the CLD player section for LC-V100/SEM.



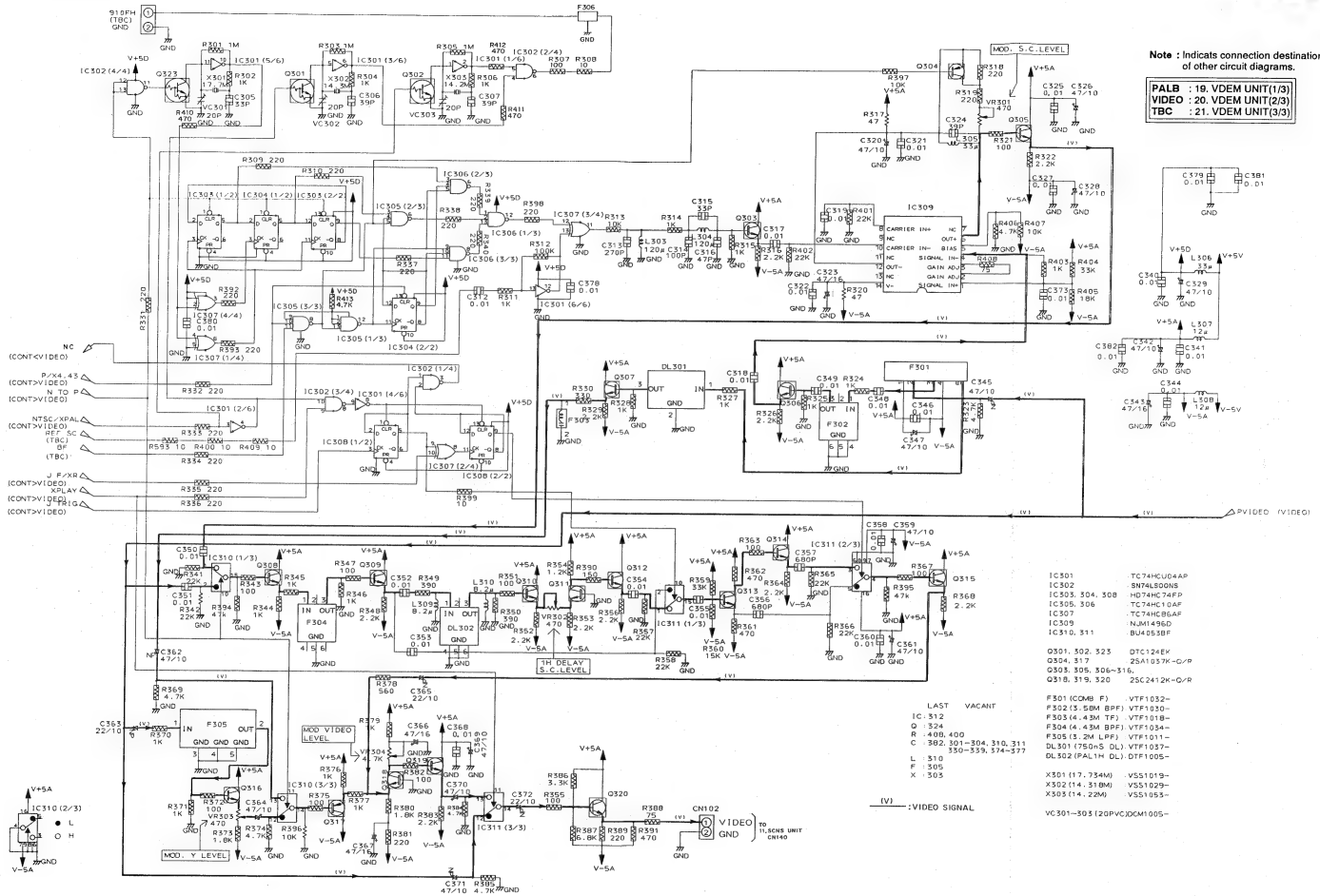
• View from soldering side

• View from component side

VDEM UNIT(RWZ2766)



## 19. VDEM UNIT (1/3) (PALB Section)

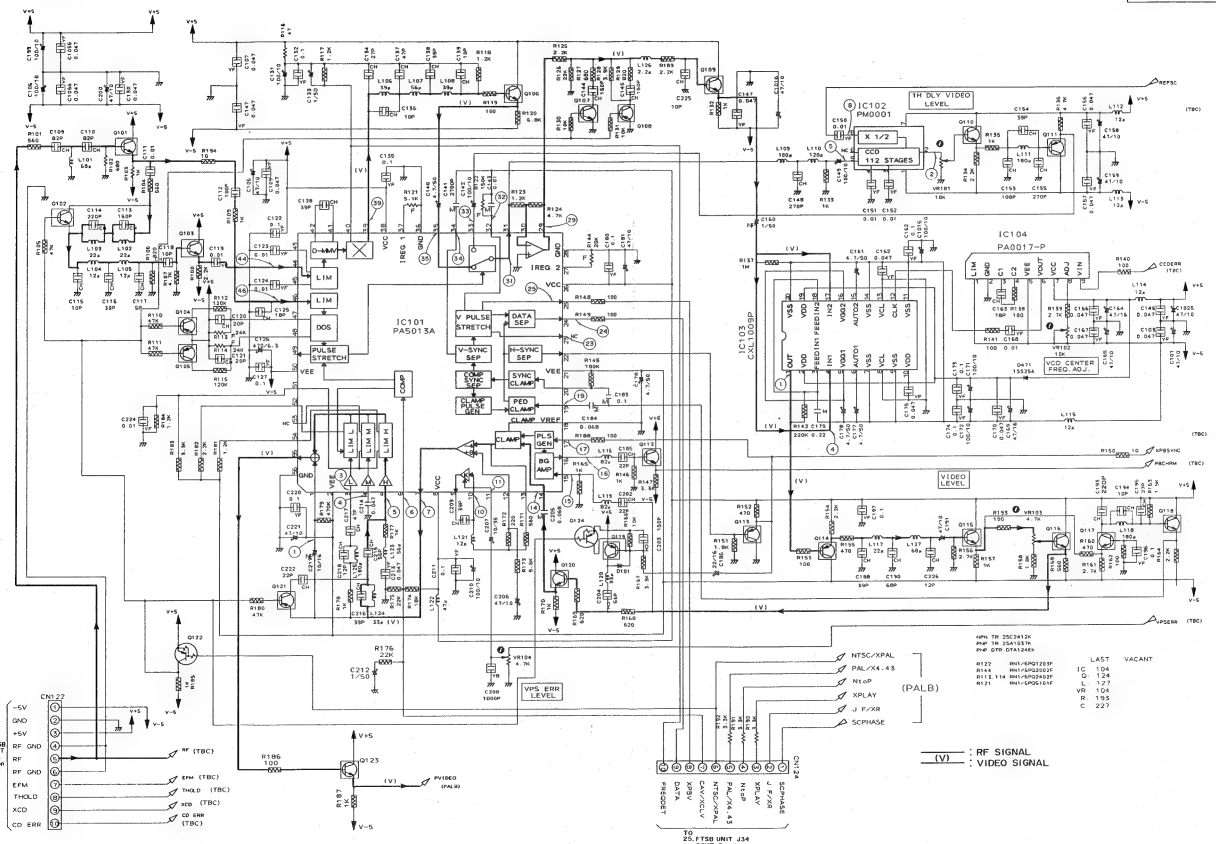


## 20. VDEM UNIT (2/3) (VIDEO Section)

VDEM UNIT(RWZ2766)
•VIDEO Section

**Note :** Indicats connection destination of other circuit diagrams.

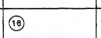
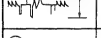
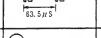
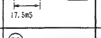
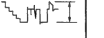
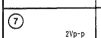
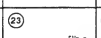
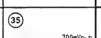
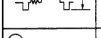
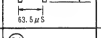
| | |
|---|---|
| PALB | : 19. VDEM UNIT(1/3) |
| VIDEO | : 20. VDEM UNIT(2/3) |
| TBC | : 21. VDEM UNIT(3/3) |



## VIDEO SECTION

Note: (No.) in the table correspond to the pin No.

### IC101 (PA5013A)

| | | | |
|---|---|---|---|
| ①   | ⑭   | ㉙   | ㊻   |
| ③   | ⑮   | ㉛   | |
| ④   | ⑯   | ㉜   | ②   |
| ⑤   | ⑰   | ㉝   | ⑤   |
| ⑥   | ⑲   | ㉞   | ⑧   |
| ⑦   | ㉓   | ㉟   | |
| ⑩   | ㉔   | ㊴   | ①   |
| ⑪   | ㉕   | ㊹   | ④   |

### IC104 (PA0017-P)

| |
|---|
| ⑨   |

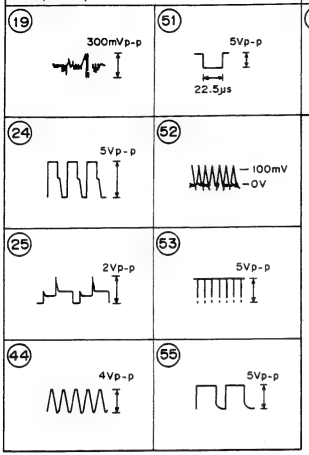
### IC102 (PM0001)

### IC103(CXL1009P)

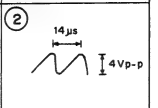
Note : (No) in th ble correspond to the pin No.

## TBC SECTION

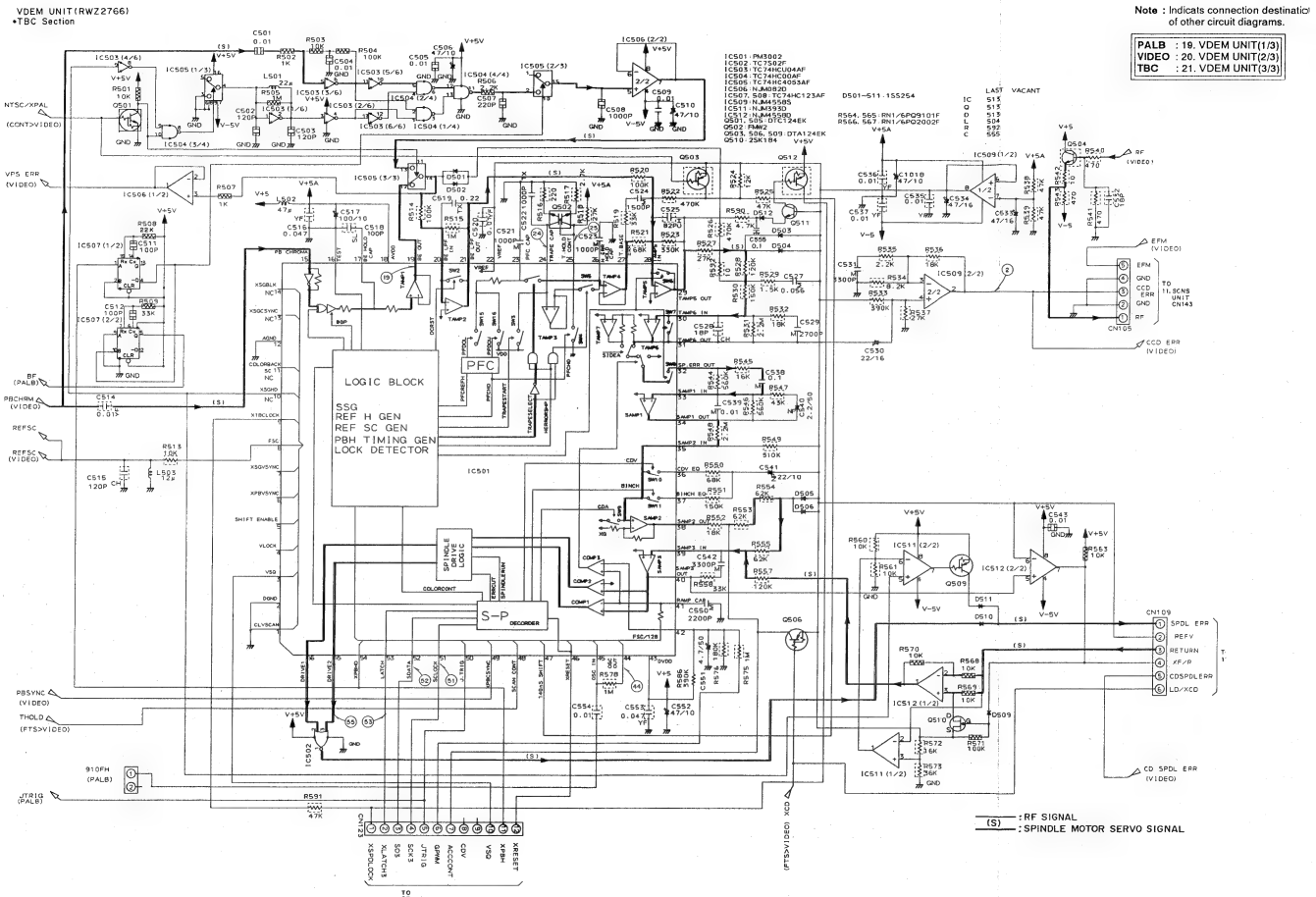
IC501(PM3002)




IC509(NJM4558S)



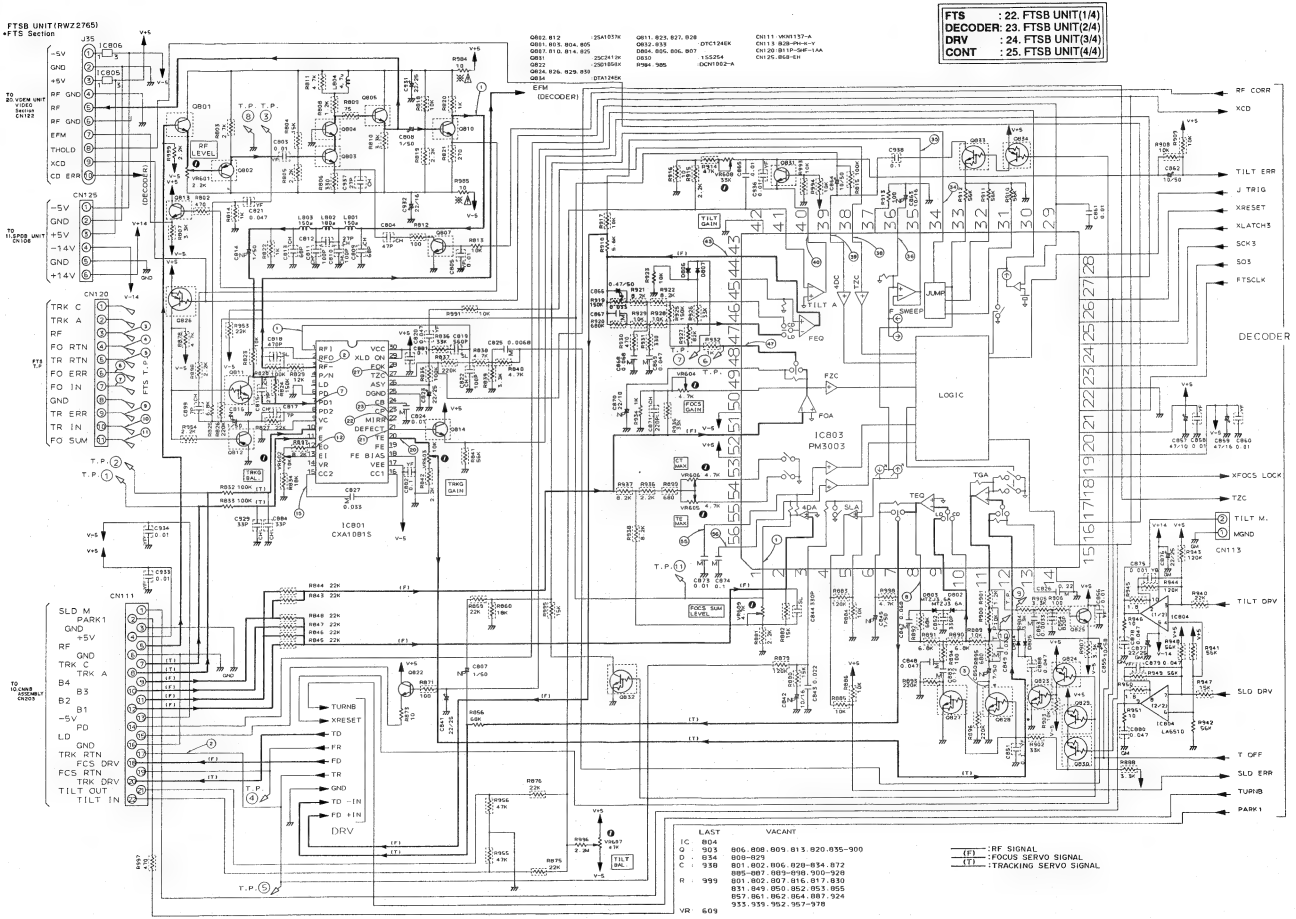
## 21. VDEM UNIT (3/3) (TBC Section)



## 22. FTSB UNIT (1/4) (FTS Section)

**Note :** Indicats connection destination of other circuit diagrams.

| | |
|---|---|
| FTS | : 22. FTSB UNIT(1/4) |
| DECODER | : 23. FTSB UNIT(2/4) |
| DRV | : 24. FTSB UNIT(3/4) |
| CONT | : 25. FTSB UNIT(4/4) |




| | LAST | VACANT |
|---|---|---|
| IC | 804 | |
| Q | 903 | 806.808.809.813.820.835-900 |
| D | 834 | 808-829 |
| C | 938 | 801.802.806.828-834.872 |
| | | 895-897.899-898.900-928 |
| R | 999 | 801.802.807.816.817.830 |
| | | 831.849.850.852.853.855 |
| | | 857.861.862.864.887.924 |
| | | 933.939.952.957-978 |
| VR | 609 | |

## FTS SECTION

Note: (No.) in the table correspond to the pin No.

### IC801 (CXA1081S)

| | | | |
|---|---|---|---|
| ①   | ⑳   | | |
| ②   | ㉑   | | |
| ⑦   | ㉒   | | |
| ⑫   | ㉓   | | |
| ⑮   | ㉗   | | |

### CN120

| | | | |
|---|---|---|---|
| ③   | ④   | ⑤   | ⑥   |
| ⑦   | ⑨   | ⑩   | ⑪   |

### IC803 (PM3003A)

| | | | |
|---|---|---|---|
| ①   | ㊳   | | |
| ⑧   | ㊵   | | |
| ㉞   | ㊸   | | |
| ㉟   | ㊼   | | |
| ㊱   | ㊺   | | |
| ㊳   | ㊽   | | |

### Other points

| | | | |
|---|---|---|---|
| ① Q810 Collector   | | | |
| ② CN111 Pin 17   | | | |
| ③ Q828 Collector   | | | |
| ④ CN111 Pin 18   | | | |
| ⑤ CN111 Pin 19   | | | |
| ⑥ IC804 Pin 9   | | | |

## DECODER SECTION

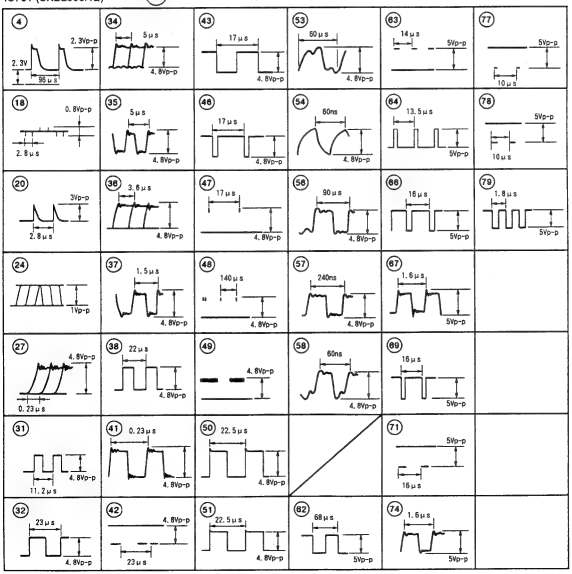
Note: Waveforms and voltages are at the PLAY.

IC701 (CXD2500AQ)

| Pin No. | Voltage | Pin No. | Voltage | Pin No. | Voltage | Pin No. | Voltage | Pin No. | Voltage | Pin No. | Voltage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 15 | 0 | 29 | 0 | 43 | * | 57 | * | 71 | * |
| 2 | 0 | 16 | 4.8 | 30 | 0 | 44 | 0 | 58 | * | 72 | 5 |
| 3 | 0 | 17 | 0 | 31 | * | 45 | 4.8 | 59 | 5 | 73 | 5 |
| 4 | * | 18 | * | 32 | * | 46 | * | 60 | * | 74 | * |
| 5 | 0 | 19 | 2.4 | 33 | 4.8 | 47 | * | 61 | 5 | 75 | 0 |
| 6 | 4.8 | 20 | * | 34 | * | 48 | * | 62 | * | 76 | 0 |
| 7 | 0 | 21 | 0 | 35 | * | 49 | * | 63 | * | 77 | * |
| 8 | 4.8 | 22 | 2.3 | 36 | * | 50 | * | 64 | * | 78 | * |
| 9 | 0 | 23 | 4.8 | 37 | * | 51 | * | 65 | 0 | 79 | * |
| 10 | 0 | 24 | * | 38 | * | 52 | 0 | 66 | * | 80 | 0 |
| 11 | 0 | 25 | 0 | 39 | 0 | 53 | * | 67 | * | | |
| 12 | 0 | 26 | 0 | 40 | 4.8 | 54 | * | 68 | 0 | | |
| 13 | 0 | 27 | * | 41 | * | 55 | 0 | 69 | * | | |
| 14 | 0 | 28 | 0 | 42 | * | 56 | * | 70 | 5 | | |

*: Refer to waveforms

IC701 (CXD2500AQ) Note: (No.) in the table correspond to the pin No.

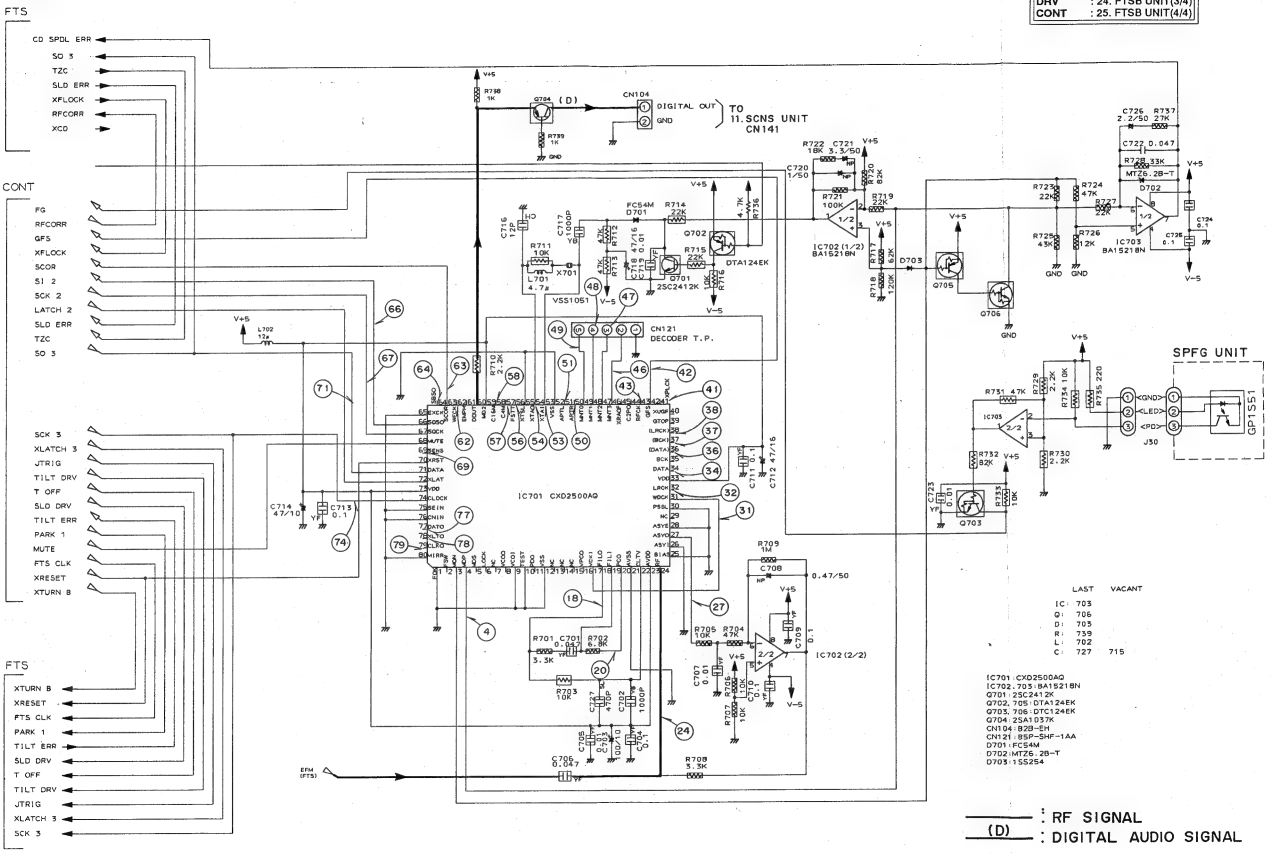


## 23. FTSB AND SPFG UNIT (2/4) (DECODER Section)

Note : Indicats connection destination of other circuit diagrams.

| | |
|---|---|
| FTS | : 22. FTSB UNIT(1/4) |
| DECODER | : 23. FTSB UNIT(2/4) |
| DRV | : 24. FTSB UNIT(3/4) |
| CONT | : 25. FTSB UNIT(4/4) |

FTSB UNIT(RWZ2765)
•DECODER Section



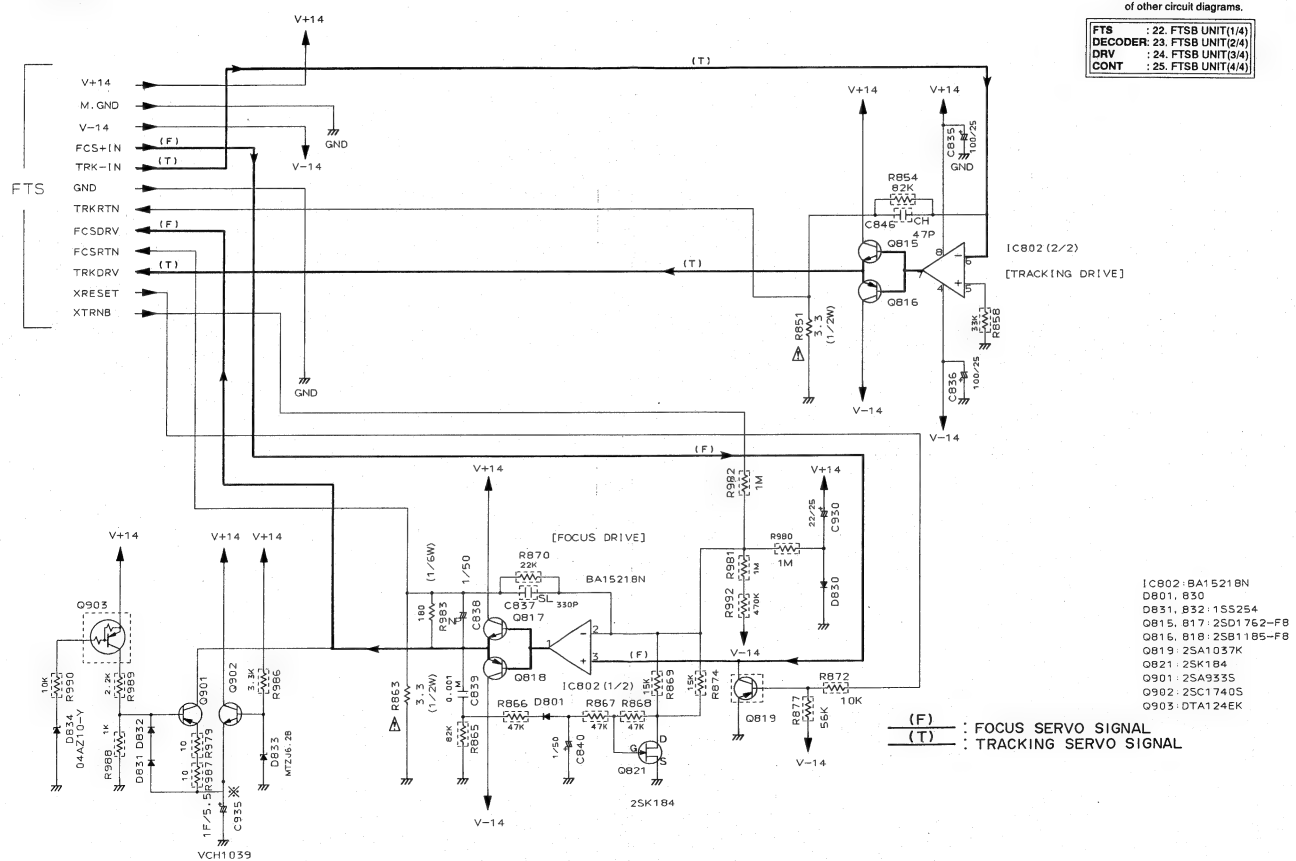

LAST VACANT

IC: 703
Q: 706
D: 705
R: 739
L: 702
C: 727 715

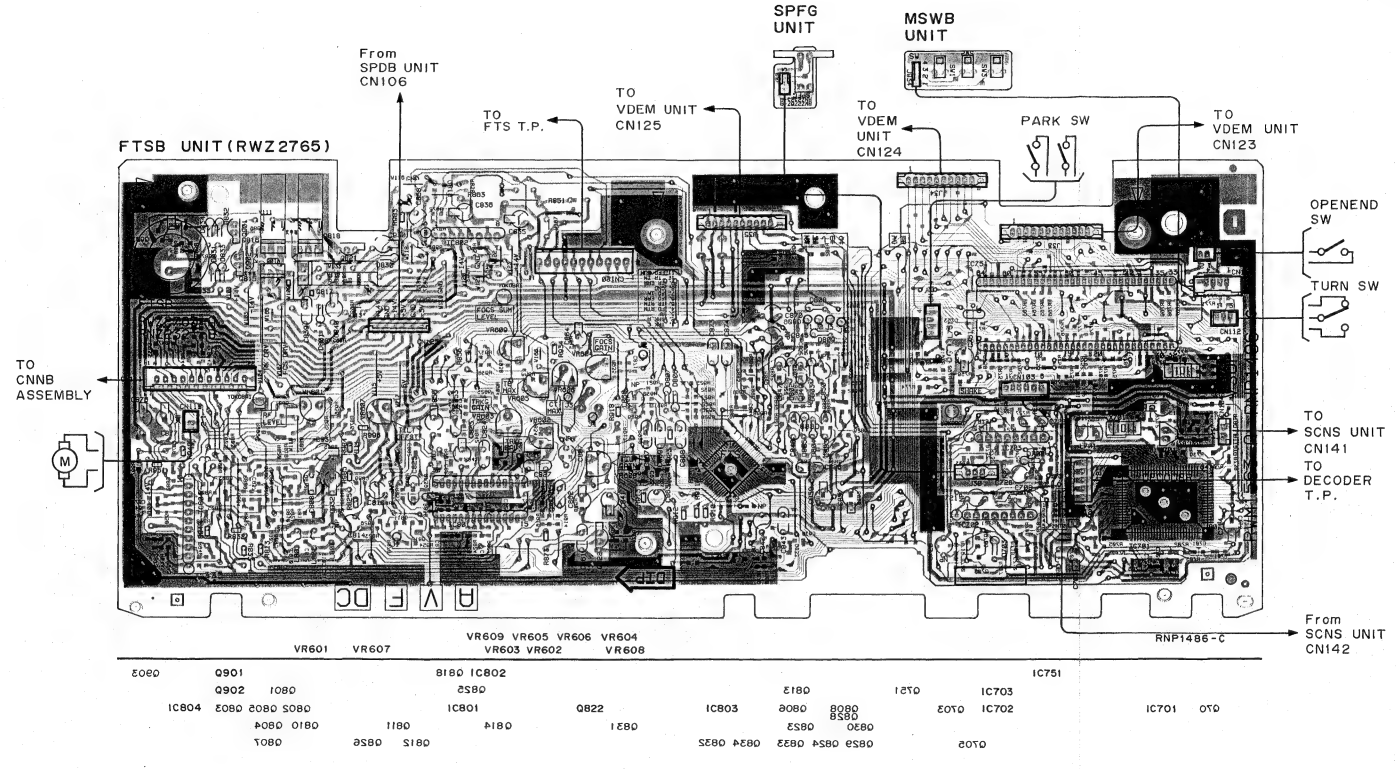
IC701:CXD2500AQ
IC702,703:BA15218N
Q701:2SC2412K
Q702,705:DTA124EK
Q703,706:DTC124EK
Q704:2SA1037K
CN104:B2B-EH
CN121:B6P-SHF-1AA
D701:FCS4M
D702:MTZ6.2B-T
D703:1SS254

——— : RF SIGNAL
(D) ——— : DIGITAL AUDIO SIGNAL

## 24. FTSB UNIT (3/4) (DRV Section)



• View from component side



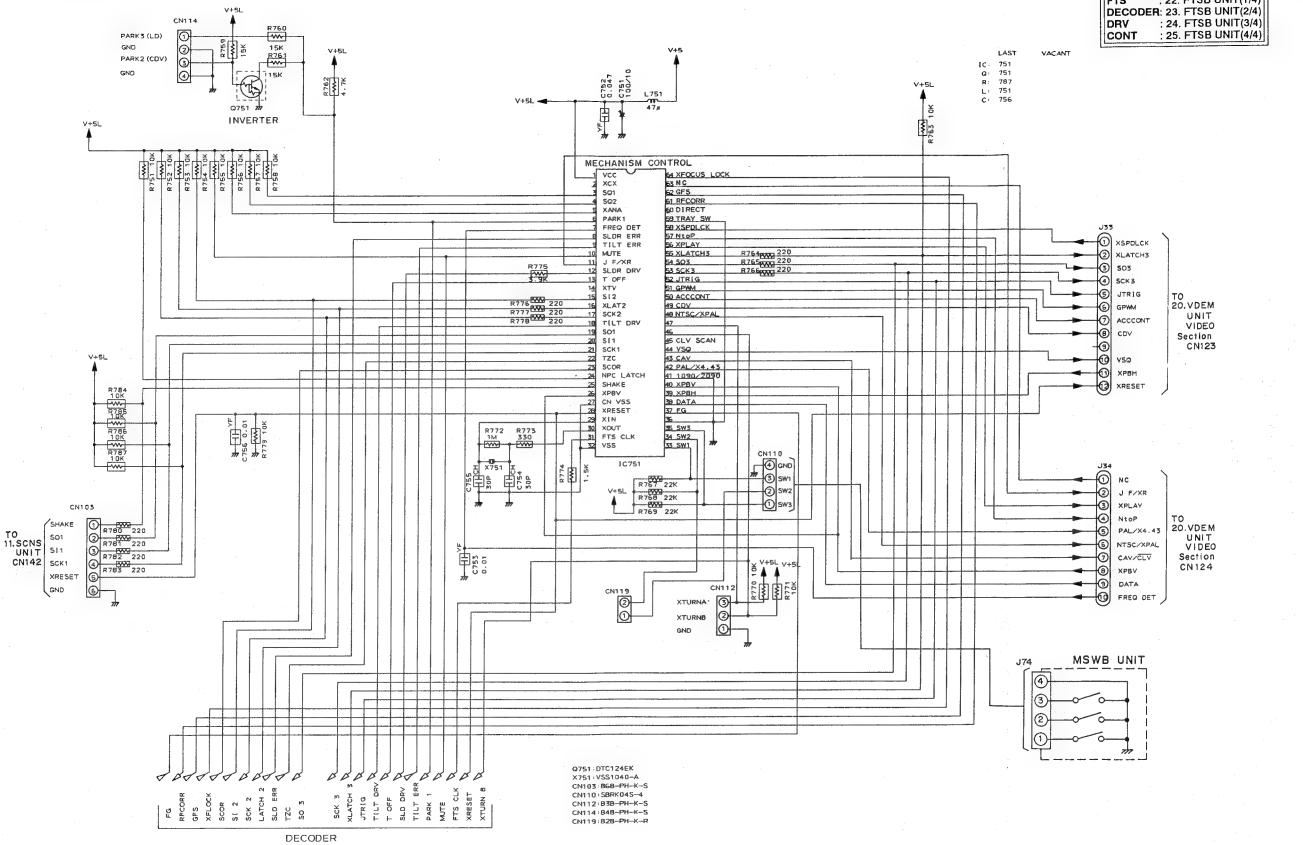
• View from soldering side

## 25. FTSB AND MSWB UNIT (4/4) (CONT Section)

FTSB UNIT (RWZ2765)
•CONT Section

Note : Indicats connection destination of other circuit diagrams.

| | |
|---|---|
| FTS | : 22. FTSB UNIT(1/4) |
| DECODER | : 23. FTSB UNIT(2/4) |
| DRV | : 24. FTSB UNIT(3/4) |
| CONT | : 25. FTSB UNIT(4/4) |



# 6. PCB PARTS LIST

**NOTES:**

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10¹ → 561 ····· RD1/8PM 5 6 1 J
47k Ω → 47 × 10³ → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621 ····· RN1/4PC 5 6 2 1 F

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | **LIST OF ASSEMBLIES** | | |
| ⊙ | VAPB UNIT | | RWG1006 |
| | | (LC-V200/KUC type) | |
| | | | RWG1007 |
| | | (LC-V100/SEM type) | |
| ⊙ | CMEC UNIT | | RWG1008 |
| | | (LC-V200/KUC type) | |
| | | | RWG1009 |
| | | (LC-V100/SEM type) | |
| ⊙ | CIOB UNIT | | RWG1010 |
| ⊙ | VSOP UNIT | | RWM1554 |
| | | (LC-V200/KUC type) | |
| | | | RWM1563 |
| | | (LC-V100/SEM type) | |
| ⊙ | ├ PTSB UNIT | | RWZ2750 |
| | | (LC-V200/KUC type) | |
| | | | RWZ2765 |
| | | (LC-V100/SEM type) | |
| ⊙ | ├ VDEM UNIT | | RWZ2751 |
| | | (LC-V200/KUC type) | |
| | | | RWZ2766 |
| | | (LC-V100/SEM type) | |
| NSP | ├ SPFG UNIT | | RWZ2752 |
| | | (LC-V200/KUC type) | |
| | | | RWZ2767 |
| | | (LC-V100/SEM type) | |
| NSP | └ MSWB UNIT | | RWZ2753 |
| | | (LC-V200/KUC type) | |
| | | | RWZ2768 |
| | | (LC-V100/SEM type) | |
| ⊙ | SPPS UNIT | | RWM1555 |
| NSP | ├ SPDB UNIT | | RWZ2745 |
| NSP | ├ REGA UNIT | | RWZ2746 |
| NSP | ├ REGB UNIT | | RWZ2747 |
| NSP | ├ SCNS UNIT | | RWZ2748 |
| NSP | └ SCNP UNIT | | RWZ2749 |
| ⊙ | MECB UNIT | | RWM1562 |
| ⊙ | ├ CNNB UNIT | | RWZ2427 |
| ⊙ | ├ CMSW UNIT | | RWZ2429 |
| ⊙ | ├ ENCB UNIT | | RWZ2430 |
| ⊙ | ├ YMFG UNIT | | RWZ2431 |
| ⊙ | └ INDB UNIT | | RWZ2764 |
| NSP | DSNA UNIT | | RWZ2432 |
| NSP | DSNB UNIT | | RWZ2433 |
| ⊙ | SYSB UNIT | | RWZ2769 |
| ⊙ | DISP UNIT | | RWZ2770 |
| NSP | PSPB UNIT | | RWZ2754 |
| | | (LC-V200/KUC type) | |
| | | | RWZ2773 |
| | | (LC-V100/SEM type) | |
| ⊙ | PSSB UNIT | | RWZ2755 |
| | | (LC-V200/KUC type) | |
| | | | RWZ2774 |
| | | (LC-V100/SEM type) | |
| NSP | SBTB UNIT | | RWZ2756 |
| | | (LC-V200/KUC type) | |
| | | | RWZ2775 |
| | | (LC-V100/SEM type) | |
| NSP | MTPB UNIT | | RWZ2757 |
| | | (LC-V200/KUC type) | |
| | | | RWZ2776 |
| | | (LC-V100/SEM type) | |
| NSP | MTSB UNIT | | RWZ2758 |
| | | (LC-V200/KUC type) | |
| | | | RWZ2777 |
| | | (LC-V100/SEM type) | |
| NSP | FUSB UNIT | | RWZ2779 |
| | | (LC-V200/KUC type) | |
| | | | RWZ2778 |
| | | (LC-V100/SEM type) | |
| NSP | CNNB ASSEMBLY | | VWG1194 |
| NSP | HEAD ASSEMBLY | | VWF1178 |
| NSP | SLMB ASSEMBLY | | VNP1295 |
| | **VAPB UNIT** | | |
| | **SEMICONDUCTORS** | | |
| | IC204, IC205, IC505 | | BA15218 |
| | IC607 | | BU2040 |
| | IC501, IC502, IC701 | | BU4053B |
| | IC401 | | HA12127ANT |
| | IC202 | | LC7883K |
| | IC702 | | M50555-056SP |
| ⚠ | IC601 | | NJM7805FA |
| ⚠ | IC602 | | NJM7808FA |
| ⚠ | IC604 | | NJM78M05FA |
| ⚠ | IC603 | | NJM7908FA |
| ⚠ | IC605 | | NJM79M05FA |
| | IC201 | | PD005Z |
| | IC704 | | TC74HC00AP |
| | IC608 | | TC74HC02AP |
| | IC103 | | TC74HC04AP |
| | IC703 | | TC74HCU04AP |
| ⚠ | Q602 | | 2SA1286 |
| | Q405, Q407 | | 2SA933S |
| | | (LC-V100/SEM only) | |
| | Q400, Q401, Q404, Q701, Q703, Q712, Q716, Q718 | | 2SA933S |
| | Q702, Q704, Q705, Q711, Q713, Q714, Q717, Q719 | | 2SC1740S |
| ⚠ | Q601 | | 2SC3243 |
| | Q505, Q506 | | 2SD2144S |
| | Q409, Q413 | | 2SK184 |
| | | (LC-V100/SEM only) | |
| | Q402, Q403 | | XDA124ES |
| | | (LC-V100/SEM only) | |
| | Q512 | | XDA124ES |
| | Q603 | | XDA144ES |
| | Q408, Q410-Q412, Q707 | | XDC124ES |
| | | (LC-V100/SEM only) | |
| | Q511, Q706, Q707 | | XDC124ES |
| | Q604 | | XDC144ES |
| ⚠ | D601-D604 | | 1SS2 |
| | D400-D404, D406 | | 1SS254 |
| | | (LC-V100/SEM only) | |
| | D203, D407, D408, D701 | | 1SS254 |
| | D101, D201, D202 | | MTZ6. 2C |
| | **COILS/TRANSFORMERS** | | |
| | L104, L201, L203, L400, L601, L702 | | LAU101K |
| | L701 | | LAU390J |
| | L401 | | LAU470J |
| | L202, L402, L703 | | LAU560J |
| | F401 | | VTF1035 |
| | | (LC-V100/SEM only) | |
| | F402 | | VTF1036 |
| | | (LC-V100/SEM only) | |
| | F403 | | VTF1047 |
| | **CAPACITORS** | | |
| | C721 | | CCDCH010C50 |
| | C717, C718 | | CCCCH100D50 |
| | C422, C460 | | CCCCH101J50 |
| | C722 | | CCCCH120J50 |
| | | (LC-V100/SEM only) | |
| | C401 | | CCCCH121J50 |
| | C418 | | CCCCH150J50 |
| | | (LC-V100/SEM only) | |
| | C450 | | CCCCH180J50 |
| | C417 | | CCCCH220J50 |
| | C208, C400 | | CCCCH390J50 |
| | C451 | | CCCCH430J50 |
| | | (LC-V100/SEM only) | |
| | C402 | | CCCCH910J50 |
| | C415, C449 | | CCCSL221J50 |
| | | (LC-V100/SEM only) | |
| | C414, C424, C448, C461 | | CCCSL221J50 |
| | C704 | | CCCSL330J50 |
| | C734 | | CCCSL470J50 |
| | C423, C445 | | CEANP100M16 |
| | C416, C452, C455 | | CEANP220M10 |
| | C409 | | CEAS100M50 |
| | | (LC-V100/SEM only) | |
| | C425, C462, C602, C606, C607, C710 | | CEAS100M50 |
| | C131, C202, C205, C210, C212, C429, C432, C465, C501-C504, C511, C512, C610, C611, C613, C701, C702, C706, C707, C709, C720, C732, C733, C736 | | CEAS101M10 |
| | C216-C219, C222, C223, C228, C229, C444, C457, C519, C520 | | CEAS220M50 |
| | C604, C605 | | CEAS222M25 |
| | C204 | | CEAS2R2M50 |
| | C214, C730 | | CEAS331M6R3 |
| | C412, C413, C446, C447 | | CEAS470M10 |
| | C608, C609, C703, C705 | | CEAS470M16 |
| | C729, C731 | | CEAS471M6R3 |
| | C430 | | CEAS4R7M50 |
| | C428 | | CEASR47M50 |
| | C410 | | CFTXA103J50 |
| | C207, C454 | | CFTXA104J50 |
| | C421, C459 | | CFTXA152J50 |
| | C420, C458 | | CFTXA472J50 |
| | C427, C464 | | CFTXA473J50 |
| | C426, C463 | | CFTXA822J50 |
| | C132, C134 | | CGCYF473Z50 |
| | C201, C203, C206, C713 | | CGCYX104M16 |
| | C411, C419, C431, C433, C453, C456 | | CKCYB102K50 |
| | C711 | | CKCYB152K50 |
| | C714 | | CKCYB472K50 |
| | C130, C209, C211, C213, C403-C408, C601, C612, C614, C615, C708, C719, C723, C724 | | CKCYF103Z50 |
| | C469-C471 | | CKCYF103Z50 |
| | | (LC-V100/SEM only) | |
| | C137, C138, C215, C603, C712 | | CKCYF473Z50 |
| | C220, C221 | | CQMA392J50 |
| | C224-C227 | | CQMA561J50 |
| | VC701(20p) | | VCM-008 |
| | VC702(20p) | | VCM-008 |
| | | (LC-V100/SEM only) | |
| | **RESISTORS** | | |
| | R507 | | RA9T223J |
| | R131, R134 | | RD1/6PM272J |
| | R412 | | RD1/6PM222J |
| | | (LC-V100/SEM only) | |
| | R415-R418 | | RD1/6PM102J |
| | | (LC-V100/SEM only) | |
| | R419 | | RD1/6PM103J |
| | | (LC-V100/SEM only) | |
| | R420 | | RD1/6PM221J |
| | | (LC-V100/SEM only) | |
| | R424 | | RD1/6PM752J |
| | | (LC-V100/SEM only) | |
| | R426, R446 | | RD1/6PM125J |
| | | (LC-V100/SEM only) | |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | R432 | | RD1/6PM132J (LC-V100/SEM only) |
| | R442 | | RD1/6PM751J (LC-V100/SEM only) |
| | R445 | | RD1/6PM302J (LC-V100/SEM only) |
| | R712 | | RD1/6PM105J (LC-V100/SEM only) |
| | OTHER RESISTORS | | RD1/6PM□□□J |
| **OTHERS** | | | |
| | JA701 1P PIN JACK | | RKB1008 |
| | X702 CRYSTAL RESONATOR(17.734MHz) | | VSS1019 (LC-V100/SEM only) |
| | X701 CRYSTAL RESONATOR(F=14.31) | | VSS1026 |

## CMEC UNIT

### SEMICONDUCTORS

| | | |
|---|---|---|
| | IC104, IC107, IC109, IC116, IC117 | BA10393 |
| | IC105, IC106 | BA15218 |
| | IC102 | NJM082D |
| ⚠ | IC115 | NJM7812FA |
| | IC101 | NJU4053BD |
| | IC114 | PD4360C |
| ⚠ | IC111, IC112 | TA7291P |
| | IC110 | TC4001BP |
| | IC103 | TC4011BP |
| | IC108 | TC4023BP |
| | Q101, Q103, Q105, Q112, Q120, Q125, Q130, Q142, Q143, Q144, Q145 | 2SA933S |
| ⚠ | Q127, Q128 | 2SB1185 |
| | Q102, Q104, Q110, Q111, Q122, Q126, Q129, Q134, Q137 | 2SC1740S |
| ⚠ | Q135, Q136, Q146, Q147 | 2SD1762 |
| | Q107, Q109, Q115 | XDA144ES |
| | Q106, Q108, Q113, Q114, Q116, Q123, Q124, Q131-Q133, Q138 | XDC114ES |
| | Q121 | XDC144ES |
| | D134 | 1SS252 |
| | D101-D107, D109, D114, D118, D120, D123 | 1SS254 |
| ⚠ | D110-D113 | D1NL20 |
| ⚠ | D121, D122 | D3SBA20 |
| | D116 | MTZ10B |
| | D115 | MTZ11B |
| | D108 | MTZ5.1B |
| | D128-D132 | MTZ8.2B |
| | D136 | SEL3110S |
| | D135 | SEL3410ELC05 |
| | D119 | SEL3910ALC05 |

### COILS/TRANSFORMERS

| | | |
|---|---|---|
| | L101 | LFA221J |

### CAPACITORS

| | | |
|---|---|---|
| | C104 | CCCSL221J50 |
| | C105 | CEANP4R7M2S |
| | C101, C108 | CEAS010M50 |
| | C102, C111, C122, C123, C302 | CEAS100M50 |
| | C106 | CEAS220M16 |
| | C144 | CEAS222M2S |
| | C116 | CEAS470M10 |
| | C136 | CEAS470M16 |
| | C114 | CFTXA474J5I |
| | C125, C126 | CGCYF1042Z5 |
| | C110, C115, C119, C128, C130, C133, C137, C139-C141 | CKCYF103Z5A |
| | C107, C112 | CQMA152J50 |
| | C103 | CQMA222J50 |
| | C113, C120, C121 | CQMA392J50 |
| | C109, C117, C118 | CQMA393J50 |
| | C134(6800/35) | RCH1063 |
| | C135(6800/25) | RCH1064 |
| | C129 | CEAS221M10 |

### RESISTORS

| | | |
|---|---|---|
| | R195 | RA4T222J |
| | R167, R177, R179, R186 | RS1LF222J |
| | R171, R173, R181, R184 | RS2LF102J |
| | R183 | RS2LFR22J |
| | R242 | RS2PMF221J |
| | OTHERS RESISTORS | RD1/6PM□□□J |

### OTHERS

| | | |
|---|---|---|
| | CN202, CN204 6P TOP POST | B6P-SHF |
| | CN203 8P TOP POST | B8P-SHF |
| | CN50 CONNECTOR 17P | SLEM17S |
| | X101 CERAMIC RESONATOR(F=4.19MHZ) | VSS1014 |

## CIOB UNIT

### SEMICONDUCTORS

| | | |
|---|---|---|
| | IC101 | SN75179BP |
| | Q102 | 2SA933S |
| | Q101 | 2SC1740S |
| | Q202 | 2SC1741S |
| | D201 | 1SS252 |
| | D101-D109 | 1SS254 |

### SWITCHI

| | | |
|---|---|---|
| | S1 | VSH1007 |

### RELAYS

| | | |
|---|---|---|
| | RY201, RY202 | RSR1027 |

### COILS/TRANSFORMERS

| | | |
|---|---|---|
| | L101 | LFA221J |

### CAPACITORS

| | | |
|---|---|---|
| | C209 | CCCSL470J50 |
| | C101, C108 | CEAS101M10 |
| | C103, C107, C111 | CKCYF103Z50 |
| | C102 | CKCYF223Z50 |
| | C104, C105, C207, C208 | CKCYF473Z50 |
| | C203-C206 | CQMA102J50 |

### RESISTORS

| | | |
|---|---|---|
| | ALL RESISTORS | RD1/6PM□□□J |

### OTHERS

| | | |
|---|---|---|
| | JA3 D-SUB SOCKET 9P | DKN1051 |
| | JA2 D-SUB SOCKET 9P | DKN1076 |
| | JA1 JACK 6P | VKB1025 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **CNNB UNIT** | | | |
| **OTHERS** | | | |
| | CN51 | CONNECTOR 17P | SLEM17R |
| **CMSW UNIT** | | | |
| **SWITCHES** | | | |
| | S101, S102 | | DSG1016 |
| **ENCB UNIT** | | | |
| **SEMICONDUCTORS** | | | |
| | D121-D123 | | GP1A14 |
| **RESISTORS** | | | |
| | ALL RESISTORS | | RD1/6PM□□□J |
| **VMFG UNIT** | | | |
| **SEMICONDUCTORS** | | | |
| | D131 | | GP1A51HR |
| **RESISTORS** | | | |
| | ALL RESISTORS | | RD1/6PM□□□J |
| **DSNA UNIT** | | | |
| **SEMICONDUCTORS** | | | |
| | D101-D103 | | GL380 |
| **RESISTORS** | | | |
| | ALL RESISTORS | | RD1/6PM□□□J |
| **OTHERS** | | | |
| | SENSOR HOLDER | | RNK1795 |
| **DSNB UNIT** | | | |
| **SEMICONDUCTORS** | | | |
| | Q101-Q103 | | PT4800F |
| **RESISTORS** | | | |
| | ALL RESISTORS | | RD1/6PM□□□J |
| **OTHERS** | | | |
| | SENSOR HOLDER | | RNK1753 |
| **SPDB UNIT** | | | |
| **SEMICONDUCTORS** | | | |
| | IC101, IC102 | | BA15218 |
| | IC105, IC106 | | ICP-N15 |
| | IC103 | | TA8413P |
| | Q113-Q115 | | 2SA817 |
| | Q103, Q108, Q117 | | 2SA933S |
| | Q119 | | 2SC1627 |
| | Q107, Q118, Q121 | | 2SC1740S |
| | Q109 | | 2SC1847 |
| | Q120 | | 2SD1267 |
| | Q101, Q104-Q106, Q110, Q122 | | DTC124ES |
| | Q123 | | STA302A |
| | Q124 | | STA303A |
| | D105 | | 11ES2 |
| | D101-D104 | | 1SS254 |
| | D109 | | S2K20 |
| | D106-D108 | | S3V10-4002P7.5 |
| **COILS/TRANSFORMERS** | | | |
| | L101 | | VTT-070 |
| **CAPACITORS** | | | |
| | C125, C127, C129, C132, C133 | | CEAS220M25 |
| | C118 | | CEAS3R3M50 |
| | C121, C123 | | CEAS470M10 |
| | C117 | | CEAS470M50 |
| | C114 | | CEAS4R7M50 |
| | C116 | | CKCYB471K50 |
| | C101 | | CKPUYB101K50 |
| | C102 | | CKPUYB331K50 |
| | C115 | | CKPUYB681K50 |
| | C120, C122, C124, C126, C128, C130, C131, C134 | | CKPUYF103Z25 |
| | C119 | | CMA103J50 |
| | C103 | | CQMA183J50 |
| | C111-C113 | | CQMA333J50 |
| | C104 | | CQMA473J50 |
| | C105-C110 C= 22, V(DC)= 50, | | VCH1091 |
| **RESISTORS** | | | |
| | R125, R126-R132 | | RD1/4LF□□□J |
| | R149-R154 | | RN1/6PQ□□□□F |
| | R147 | | RS1LMF2R7J |
| | R120 | | RS1LMF3R3J |
| | R148 | | RS1LMFR51J |
| | OTHER RESISTORS | | RD1/6PM□□□J |
| **REGA UNIT** | | | |
| **SEMICONDUCTORS** | | | |
| | IC113 | | NJM7805FA |
| **CAPACITORS** | | | |
| | C147 | | CEAS470M10 |
| | C146 | | CEASR10M50 |
| **REGB UNIT** | | | |
| **SEMICONDUCTORS** | | | |
| | IC114 | | NJM7905FA |
| **CAPACITORS** | | | |
| | C149 | | CEAS470M10 |
| | C148 | | CEASR10M50 |
| **SCNS UNIT** | | | |
| There is no supply part in this unit. | | | |
| **SCNP UNIT** | | | |
| There is no supply part in this unit. | | | |
| **INDB UNIT** | | | |
| **SEMICONDUCTORS** | | | |
| | D111 | | LT9010T |
| **RESISTORS** | | | |
| | ALL RESISTORS | | RD1/6PM□□□J |

## FTSB UNIT (LC-V200/KUC type)

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | IC204, IC802 | | BA15218N |
| | IC801 | | CXA1081S |
| | IC201 | | CXD2500AQ |
| | IC804 | | LA6510L |
| | IC803 | | PM3003A |
| | Q203, Q802, Q812, Q819 | | 2SA1037K |
| | Q901 | | 2SA933S |
| | Q816, Q818 | | 2SB1185-F8 |
| | Q902 | | 2SC1740S |
| | Q201, Q803-Q805, Q807, Q810, Q814, Q825, Q831 | | 2SC2412K |
| | Q815, Q817 | | 2SD1762-F8 |
| | Q822 | | 2SD1858K |
| | Q821 | | 2SK184 |
| | D834 | | 04AZ10-Y |
| | D801, D804-D807, D830-D832 | | 1SS254 |
| | D201 | | FC54M |
| | D802, D803 | | MTZJ3.6A |
| | D833 | | MTZJ6.2C |
| **COILS/TRANSFORMERS** | | | |
| | L804 | | LAU100J |
| | L801, L803 | | LAU151J |
| | L802 | | LAU181J |
| | L227 | | LAU2R2M |
| | L225 | | LFA4R7K |
| **CAPACITORS** | | | |
| | C817, C899 | | CCSQCH050C50 |
| | C810, C811, C822 | | CCSQCH101J50 |
| | C232 | | CCSQCH120J50 |
| | C571 | | CCSQCH221J50 |
| | C812, C815 | | CCSQCH270J50 |
| | C884, C929 | | CCSQCH330J50 |
| | C846 | | CCSQCH470J50 |
| | C804, C809 | | CCSQCH680J50 |
| | C837, C844, C852 | | CCSQSL331J50 |
| | C818 | | CCSQSL471J50 |
| | C819 | | CCSQSL561J50 |
| | C225, C807, C838, C845 | | CEANP010M50 |
| | C842, C863 | | CEANP100M16 |
| | C870 | | CEANP220M10 |
| | C850 | | CEANP2R2M50 |
| | C339 | | CEANP3R3M50 |
| | C205, C866 | | CEANPR47M50 |
| | C340 | | CEAS010M50 |
| | C855, C862, C864 | | CEAS100M50 |
| | C203 | | CEAS101M10 |
| | C835, C836 | | CEAS101M25 |
| | C823, C841, C876, C877, C930, C931 | | CEAS220M25 |
| | C208, C230, C857, C859 | | CEAS470M10 |
| | C808, C814, C816 | | CEJA010M50 |
| | C932 | | CEJA220M16 |
| | C211 | | CEJA470M10 |
| | C824, C849, C861, C865, C873 | | CFTNA103J50 |
| | C874 | | CFTNA104J50 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C883 | | CFTNA124J50 |
| | C843 | | CFTNA223J50 |
| | C827, C867 | | CFTNA333J50 |
| | C848, C869 | | CFTNA473J50 |
| | C847, C868 | | CFTNA683J50 |
| | C825 | | CFTXA682J50 |
| | C231, C875 | | CKSQYB102K50 |
| | C202 | | CKSQYB152K50 |
| | C854 | | CKSQYB821K50 |
| | C206, C235, C237, C345, C803, C805, C856, C858, C860, C933, C934, C936 | | CKSQYF103Z50 |
| | C204, C209, C212, C228, C229, C851, C881, C882, C937, C938 | | CKSQYF104Z25 |
| | C201, C210, C820, C821, C878-C880, C888 | | CKSQYF473Z25 |
| | C839 | | CQMA102J50 |
| | C853 | | CQMA332J50 |
| | C935(1P/5.5) | | VCH1039 |
| **RESISTORS** | | | |
| ⚠ | R984, R985 | | DCN1002 |
| ⚠ | R851, R863 | | RD1/2LF□□□J |
| | R813, R825, R832, R833, R856, R873, R910-R913, R918, R923, R934, R942, R945, R951, R983, R998 | | RD1/6PM□□□J |
| | VR602, VR603 | | VRTB6VS103 |
| | VR601 | | VRTB6VS222 |
| | VR608 | | VRTB6VS333 |
| | VR604-VR606, VR609 | | VRTB6VS472 |
| | VR607 | | VRTB6VS473 |
| | OTHER RESISTORS | | RS1/10S□□□J |
| **OTHERS** | | | |
| | CN123 TOP POST SP | | BSP-SHF |
| | CN111 TOP CONNECTOR 22P | | VKN1137 |
| | X201 CRYSTAL RESONATOR(16MHz) | | VSS1051 |

## FTSB UNIT (LC-V100/SEM TYPE)

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | IC702, IC703, IC802 | | BA15218N |
| | IC801 | | CXA1081S |
| | IC701 | | CXD2500AQ |
| | IC805, IC806 | | ICP-N15 |
| | IC804 | | LA6510L |
| | IC751 | | PDO162A1 |
| | IC803 | | PM3003A |
| | Q704, Q802, Q812, Q819 | | 2SA1037K |
| | Q901 | | 2SA933S |
| | Q816, Q818 | | 2SB1185-F8 |
| | Q902 | | 2SC1740S |
| | Q701, Q801, Q803-Q805, Q807, Q810, Q813, Q814, Q825, Q831 | | 2SC2412K |
| | Q815, Q817 | | 2SD1762-F8 |
| | Q822 | | 2SD1858K |
| | Q821 | | 2SK184 |
| | D834 | | 04AZ10-Y |
| | D703, D801, D804-D809, D830-D832 | | 1SS254 |
| | D701 | | FC54M |
| | D702 | | MTZJ6.2B |
| | D802, D803 | | MTZJ3.6A |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | D833 | | MTZJ6.2B |
| **COILS/TRANSFORMERS** | | | |
| | L801, L803 | | LAU151J |
| | L802 | | LAU181J |
| | L751 | | LAU470J |
| | L804 | | LAU4R7K |
| | L702 | | LFA120K |
| | L701 | | LFA4R7K |
| **CAPACITORS** | | | |
| | C817, C899 | | CCSQCH070D50 |
| | C810, C811, C822 | | CCSQCH101J50 |
| | C716 | | CCSQCH120J50 |
| | C871 | | CCSQCH221J50 |
| | C812, C815, C937 | | CCSQCH270J50 |
| | C754, C755 | | CCSQCH300J50 |
| | C884, C929 | | CCSQCH330J50 |
| | C804, C846 | | CCSQCH470J50 |
| | C809, C813 | | CCSQCH680J50 |
| | C702, C717, C875 | | CCSQSL102J50 |
| | C837, C844, C852 | | CCSQSL331J50 |
| | C727, C818 | | CCSQSL471J50 |
| | C819 | | CCSQSL561J50 |
| | C720, C807, C838, C845 | | CEANP010M50 |
| | C842, C863 | | CEANP100M16 |
| | C870 | | CEANP220M10 |
| | C726 | | CEANP2R2M50 |
| | C721 | | CEANP3R3M50 |
| | C850 | | CEANP4R7M50 |
| | C708, C866 | | CEANPR47M50 |
| | C840 | | CEAS010M50 |
| | C855, C862 | | CEAS100M50 |
| | C751 | | CEAS101M10 |
| | C835, C836 | | CEAS101M25 |
| | C823, C841, C876, C877, C930, C931 | | CEAS220M25 |
| | C857 | | CEAS470M10 |
| | C712, C718, C859 | | CEAS470M16 |
| | C808 | | CEJA010M50 |
| | C864 | | CEJA100M50 |
| | C703 | | CEJA101M10 |
| | C932 | | CEJA220M16 |
| | C714 | | CEJA470M10 |
| | C814, C816 | | CEJANP010M50 |
| | C722, C824, C861, C865, C873 | | CFTNA103J50 |
| | C874 | | CFTNA104J50 |
| | C883 | | CFTNA124J50 |
| | C843 | | CFTNA223J50 |
| | C826 | | CFTNA224J50 |
| | C827, C849, C867 | | CFTNA333J50 |
| | C848, C869 | | CFTNA473J50 |
| | C847, C868 | | CFTNA683J50 |
| | C839 | | CFTXA102J50 |
| | C825 | | CFTXA682J50 |
| | C854 | | CKSQYB821K50 |
| | C705, C707, C719, C723, C753, C756, C803, C805, C856, C858, C860, C933, C934, C936 | | CKSQYF103Z50 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C704, C709-C711, C713, C724, C725, C851, C881, C882, C938 | | CKSQYF104Z25 |
| | C701, C706, C752, C820, C821, C878-C880, C888 | | CKSQYF473Z25 |
| | C853 | | CQMA332J50 |
| | C935(1F/5.5) | | VCH1039 |
| **RESISTORS** | | | |
| ⚠ | R984, R985 | | DCN1002 |
| ⚠ | R851, R863 | | RD1/2LF□□□J |
| | R813, R825, R832, R833, R856, R873, R910-R913, R918, R923, R934, R942, R946, R951, R983, R996 | | RD1/6PM□□□J |
| | VR602, VR603 | | VRTB6VS103 |
| | VR601 | | VRTB6VS222 |
| | VR608 | | VRTB6VS333 |
| | VR604-VR606, VR609 | | VRTB6VS472 |
| | VR607 | | VRTB6VS473 |
| | OTHER RESISTORS | | RS1/10S□□□J |
| **OTHERS** | | | |
| | CN121 | | B5P-SHF |
| | CN111 | | VKN1137 |
| | X751 CERAMIC RESONATOR(F=9.00MHz) | | VSS1040 |
| | X701 CRYSTAL RESONATOR | | VSS1051 |

## VDEM UNIT (LC-V200/KUC type)

| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | IC605 | | BA10393N |
| | IC602, IC603, IC606 | | BA15218N |
| | IC403 | | CL1009P |
| | IC404 | | PA0017-P |
| | IC401 | | PA5013A |
| | IC101 | | PD0162A1 |
| | IC402 | | PM0001 |
| | IC601 | | PM3002 |
| | Q457, Q496, Q511 | | 2SA1037K |
| | Q431, Q512 | | 2SC1740S |
| | Q405, Q432, Q456, Q497, Q498-Q500, Q607, Q611 | | 2SC2412K |
| | Q616 | | 2SK184 |
| | Q601 | | FMW2-TR |
| | D471, D601-D604, D609, D610, D620-D622 | | 1SS254 |
| | D611 | | MTZJ6.2C |
| **COILS/TRANSFORMERS** | | | |
| | L457, L601 | | LAU101J |
| | L414, L415, L521 | | LAU120J |
| | L523 | | LAU150J |
| | L496 | | LAU180J |
| | L497 | | LAU181J |
| | L412, L413 | | LAU220J |
| | L483 | | LAU270J |
| | L459-L462 | | LAU2R2M |
| | L101, L431, L525, L603 | | LAU470J |
| | L432, L522 | | LAU560J |
| | L411, L511 | | LAU820J |
| | L456, L458, L524 | | LFA221J |
| | L416 | | LFA330J |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **CAPACITORS** | | | |
| | C417 | | CCSQCH050CS0 |
| | C415, C441, C450, C452, C497, C500, C537 | | CCSQCH100DS0 |
| | C461 | | CCSQCH101JS0 |
| | C438 | | CCSQCH120JS0 |
| | C413, C509, C528, C529 | | CCSQCH151JS0 |
| | C485, C624, C625, C629, C655, C659, C661 | | CCSQCH180JS0 |
| | C423, C424 | | CCSQCH200JS0 |
| | C516 | | CCSQCH220JS0 |
| | C414, C456 | | CCSQCH221JS0 |
| | C437, C451, C510 | | CCSQCH270JS0 |
| | C463 | | CCSQCH271JS0 |
| | C104, C105 | | CCSQCH300JS0 |
| | C416, C439, C447, C462 | | CCSQCH330JS0 |
| | C433, C496, C524 | | CCSQCH390JS0 |
| | C411, C412, C421, C422, C536 | | CCSQCH470JS0 |
| | C498, C654 | | CCSQCH820JS0 |
| | C603 | | CCSQSL471JS0 |
| | C471 | | CEANP010M50 |
| | C436 | | CEAS010M50 |
| | C101, C401, C402, C434, C457, C481, C482 | | CEAS101M10 |
| | C484, C489, C490, C641, C642 | | CEAS470M10 |
| | C428 | | CEAS471M6R3 |
| | C475, C476 | | CEAS4R7M50 |
| | C518 | | CEJA010M50 |
| | C522 | | CEJA100M35 |
| | C445, C525, C601 | | CEJA101M6R3 |
| | C612 | | CEJA220M25 |
| | C405, C406, C464, C465, C499, C501, C502, C512, C521, C533, C622 | | CEJA470M10 |
| | C443, C472, C521 | | CEJA4R7M50 |
| | C618 | | CEJANP220M10 |
| | C616, C663 | | CEJANP2R2M50 |
| | C446, C614 | | CFTNA103J50 |
| | C514, C615 | | CFTNA104J50 |
| | C530 | | CFTNA184J50 |
| | C474, C604 | | CFTNA224J50 |
| | C610 | | CFTNA563J50 |
| | C515, C517 | | CFTNA683J50 |
| | C505-C507 | | CFTXA102J50 |
| | C608 | | CFTXA152J50 |
| | C403, C467, C538 | | CGCYX473K2S |
| | C523 | | CKSQYB102K50 |
| | C103, C106, C418, C425, C426, C458-C460, C486, C535, C628, C630, C643-C646, C651-C653, C670-C672 | | CKSQYF103Z50 |
| | C404, C427, C429, C435, C442, C479, C480, C503, C505, C506, C508, C511, C513, C526, C531 | | CKSQYF104Z25 |
| | C102, C407, C408, C431, C432, C448, C449, C466, C473, C477, C478, C483, C487, C488, C504, C507, C527, C534, C602, C623, C662 | | CKSQYF473Z25 |
| | C620 | | CQMA222J50 |
| | C444, C611 | | CQMA272J50 |
| | C613, C619 | | CQMA332J50 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | VC901 | | VCH-008 |
| **RESISTORS** | | | |
| | R431, R442, R544, R546, R547, R647 | | RD1/6PM□□J |
| | R438, R511, R415, R416, R434 | | RN1/6PQ□□□□F |
| | R109, R548 | | RS1/10S000J |
| | R626, R728, K729 | | RS1/10S□□□F |
| | VR441, VR481 | | VRTB6VS103 |
| | VR482, VRS21 | | VRTB6VS472 |
| | OTHER RESISTORS | | RS1/10S□□□J |
| **OTHERS** | | | |
| | X601 CRYSTAL RESONATOR (F=14.31MHz) | | VSS1026 |
| | X101 CERAMIC RESONATOR (F=9.00MHZ) | | VSS1040 |

## VDEM UNIT (For LC-V100/SEM type)

| | | |
|---|---|---|
| **SEMICONDUCTORS** | | |
| | IC511 | BA10393 |
| | IC310, IC311 | BU4053BF |
| | IC505 | TC74HC4053AF |
| | IC103 | CXL1003P |
| | IC303, IC304, IC308 | HD74HC74FP |
| | IC506 | NJM082D |
| | IC309 | NJM1496D |
| | IC512 | NJM4558D |
| | IC509 | NJM4558S |
| | IC104 | PA0017-P |
| | IC101 | PA5013A |
| | IC102 | PM0001 |
| | IC501 | PM3002 |
| | IC302 | SN74LS00NS |
| | IC504 | TC74HCD0AF |
| | IC305, IC306 | TC74HC10AF |
| | IC507 | TC74HC123AF |
| | IC307 | TC74HC86AF |
| | IC503 | TC74HCU04AF |
| | IC301 | TC74HCU04AP |
| | Q104, Q105, Q108, Q111, Q113, Q114, Q118, Q121, Q304, Q317 | 2SA1037K |
| | Q101-Q103, Q106, Q107, Q109, Q110, Q112, Q115-Q118, Q120, Q123, Q308, Q805-Q316, Q318-Q320, Q504, Q511 | 2SC2412K |
| | Q510 | 2SK184 |
| | Q502 | FMW2-TR |
| | D101, D471, D501-D506, D509-D512 | 1SS254 |
| **COILS/TRANSFORMERS** | | |
| | F306 | DTH1122 |
| | L104, L105, L112-L115, L121, L307, L308, L503 | LAU120J |
| | L110, L303, L304 | LAU121J |
| | L109, L111, L118, L125 | LAU181J |
| | L102, L103, L117, L501 | LAU220J |
| | L126 | LAU2R2J |
| | L120, L124, L305, L306 | LAU330J |
| | L106, L108 | LAU390J |
| | L122, L502 | LAU470J |
| | L107, L123 | LAU560J |
| | L101, L127 | LAU680J |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | L116, L119 | | LAU820J |
| | L309, L3 | | LAU8R2J |
| | F305 | | VTF1011 |
| | F303 | | VTF1018 |
| | F302 | | VTF1030 |
| | F301 | | VTF1032 |
| | F304 | | VTF1034 |
| | DL302 | | DTF1005 |
| | DL301 | | VTF1037 |
| **CAPACITORS** | | | |
| | C117 | | CCSQCH050C50 |
| | C115, C118, C136, C139, C194, C225 | | CCSQCH100D50 |
| | C112, C153, C314, C511, C512, C518 | | CCSQCH101J50 |
| | C218, C226 | | CCSQCH120J50 |
| | C502, C503, C515 | | CCSQCH121J50 |
| | C113, C144, C145, C203 | | CCSQCH151J50 |
| | C125, C163, C528, C532 | | CCSQCH180J50 |
| | C120, C121 | | CCSQCH200J50 |
| | C185, C202, C222 | | CCSQCH220J50 |
| | C114, C507, C193 | | CCSQCH221J50 |
| | C134, C195 | | CCSQCH270J50 |
| | C148, C155, C313 | | CCSQCH271J50 |
| | C116, C305, C315 | | CCSQCH330J50 |
| | C128, C138, C154, C188, C209, C216, C306, C307, C324 | | CCSQCH390J50 |
| | C137, C217, C316 | | CCSQCH470J50 |
| | C204, C215 | | CCSQCH560J50 |
| | C190 | | CCSQCH680J50 |
| | C109, C110, C525 | | CCSQCH820J50 |
| | C208, C508, C522 | | CCSQSL102J50 |
| | C356, C357 | | CCSQSL681J50 |
| | C160 | | CEANP010M50 |
| | C219 | | CEANP100M16 |
| | C363, C365, C372 | | CEANP220M10 |
| | C345 | | CEANP470M10 |
| | C131 | | CEAS101M10 |
| | C105, C165, C320, C342, C359, C361, C369, C370, C510 | | CEAS470M10 |
| | C164, C323, C343, C347, C366, C367, C533, C534 | | CEAS470M16 |
| | C133, C212 | | CEJA010M50 |
| | C207 | | CEJA100M35 |
| | C101, C102, C126, C142, C149, C171, C172, C199, C210, C517, C1025 | | CEJA101M10 |
| | C186, C530 | | CEJA220M16 |
| | C106, C158, C159, C181, C191, C200, C206, C221, C326, C328, C329, C364, C506, C552, C1015-C1018 | | CEJA470M10 |
| | C169 | | CEJA470M16 |
| | C140, C161, C177, C178, C551 | | CEJA4R7M50 |
| | C541 | | CEJANP220M10 |
| | C540 | | CEJANP2R2M50 |
| | C362, C371 | | CEJANP470M10 |
| | C143, C539 | | CFTNA103J50 |
| | C183, C538 | | CFTNA104J50 |
| | C179, C519 | | CFTNA224J50 |
| | C527 | | CFTNA563J50 |
| | C184, C205 | | CFTNA683J50 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C521, C523 | | CFTXA102J50 |
| | C524 | | CFTXA152J50 |
| | C111, C119, C123, C124, C150, C151, C152, C168, C224, C312, C317-C319, C321, C322, C325, C327, C340, C341, C344, C346, C348-C355, C358, C360, C368, C373, C378-C382, C501, C504, C505, C509, C514, C520, C535-C537, C543, C554, C555 | | CKSQYF103Z50 |
| | C103, C104, C122, C127, C132, C135, C173, C174, C180, C196, C211, C220, C1011, C1012 | | CKSQYF104Z25 |
| | C107, C129, C130, C146, C147, C156, C157, C162, C166, C167, C170, C175, C213, C214, C516, C553 | | CKSQYF473Z25 |
| | C550 | | CQMA222J50 |
| | C141, C529 | | CQMA272J50 |
| | C132 | | CKCYF473Z50 |
| | C133, C134 | | CKPUYB102K50 |
| | C531, C542 | | CQMA332J50 |
| | VC301-VC303(20p) | | DCM1005 |
| **RESISTORS** | | | |
| | R116, R317, R320, R586 | | RD1/6PM□□□J |
| | R113, R114, R121, R132, R144 | | RN1/6PQ□□□□F |
| | R545, R572, R573 | | RS1/10S□□□F |
| | VR101, VR102 | | VRTB6VS103 |
| | VR301-VR303 | | VRTB6VS471 |
| | VR103, VR104, VR304 | | VRTB6VS472 |
| | OTHER RESISTORS | | RS1/10S□□□J |
| **OTHERS** | | | |
| | X301 CRYSTAL RESONATOR(17.734MHz) | | VSS1019 |
| | X302 CRYSTAL RESONATOR(14.318MHz) | | VSS1029 |
| | X303 CRYSTAL RESONATOR(14.22MHz) | | VSS1053 |
| **SPFG UNIT** | | | |
| **SEMICONDUCTORS** | | | |
| | D1 | | GP1S51 |
| **MSWB UNIT** | | | |
| **SWITCHES** | | | |
| | S1-S3 | | DSG1015 |
| **SYSB UNIT** | | | |
| **SEMICONDUCTORS** | | | |
| | IC109 | | HD6415108F10 |
| ⚠ | IC105 | | LM294OCT-5.0 |
| | IC103 | | MGM8D011AL |
| | IC113 | | NJU4051BD |
| | IC110-IC112 | | PD6012A |
| | IC107 | | PD6104D |
| | IC101 | | PST523E |
| | IC106 | | TC5564APL-15 |
| | IC102 | | TC74HC00AP |
| | IC108 | | TC74HC20AP |
| | IC104 | | TC74HC4052AP |
| | Q101, Q102 | | XDA124ES |
| | D106 | | 1SS254 |
| | D104, D105 | | GL7F290 |
| | D101-D103 | | MTZ6.2C |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **SWITCHES** | | | |
| | S101-S106 | | RSG1010 |
| **COILS/TRANSFORMERS** | | | |
| | L101 | | LFA220K |
| **CAPACITORS** | | | |
| | C115, C116 | | CCCCH100D50 |
| | C106, C109, C111, C114, C120, C121 | | CEAS101M10 |
| | C124 | | CEAS2R2M50 |
| | C105, C107, C108, C118 | | CEAS331M16 |
| | C117, C119 | | CGCYX104M25 |
| | C126 | | CKCYB101K50 |
| | C101-C103, C133, C134 | | CKCYB102K50 |
| | C104, C110, C112, C113, C122, C123, C125, C127-C131 | | CKCYF103Z50 |
| | C132 | | CKCYF473Z50 |
| **RESISTORS** | | | |
| | R208 | | RA7S473J |
| | OTHER RESISTORS | | RD1/6PM□□□J |
| **OTHERS** | | | |
| | JA101 JACK | | RKN1024 |
| | IC SOCKET | | OKH1006 |
| | X101 CRYSTAL RESONATOR(F=19.7MHz) | | RSS1040 |

## DISP UNIT

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | IC301, IC302 | | PD0012A |
| | D305 | | 1SS254 |
| | D304 | | GL7P290 |
| | D301 | | SLH-34VC3H3-S/T |
| | D303 | | SLH-34VC3H3-S/T |
| **SWITCHES** | | | |
| | S301-S312 | | RSG1010 |
| **CAPACITORS** | | | |
| | C301, C303, C305 | | CEAL101M6R3 |
| | C306 | | CEAL2R2M50 |
| | C302, C304 | | CKFUYF103Z25 |
| **RESISTORS** | | | |
| | ALL RESISTORS | | RD1/6PM□□□J |

## PSPB UNIT

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | D101 | | 1SS254 |
| **RELAYS** | | | |
| ⚠ | RY101 | | DSR1009 |
| **COILS/TRANSFORMERS** | | | |
| ⚠ | L101, L102 | | VTL-004 |
| **CAPACITORS** | | | |
| ⚠ | C105-C113 C= 0.01,V(AC)=400/1 | | VCG-048 |

## PSSB UNIT

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| ⚠ | IC101, IC102 | | NJM7805FA |
| ⚠ | IC103 | | NJM7905FA |
| ⚠ | Q103 | | 2SA1283 |
| ⚠ | Q101 | | 2SA1286 |
| ⚠ | Q104 | | 2SC3243 |
| | Q105 | | XDA144ES |
| | Q102, Q106 | | XDC144ES |
| | D108, D109 | | 1SS254 |
| ⚠ | D106, D107, D110 | | D3SBA20 |
| ⚠ | D102, D105 | | S2VB20 |
| **CAPACITORS** | | | |
| | C116, C121, C122 | | CEAS100M50 |
| | C120 | | CEAS222M16 |
| | C117, C123, C124 | | CEAS470M16 |
| | C115 | | CEAS472M16 |
| | C119 | | CEAS682M16 |
| | C114, C118, C125, C126, C130, C131, C134, C135, C138-C143 | | CKCYF103Z50 |
| | C132, C133 , C136 , C137 (C=8200, V=25) | | DCH1042 |
| | C127-C129 (C=10000) | | VCH1050 |
| **RESISTORS** | | | |
| | R104 | | RD1/2LF□□□J |
| | OTHER RESISTORS | | RD1/6PM□□□J |

## SBTB UNIT

There is no supply part in this unit.

## MTPB UNIT

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **OTHERS** | | | |
| ⚠ | CN42 | | B2P3S-VH |

## MTSB UNIT

There is no supply part in this unit.

## FUSB UNIT

There is no supply part in this unit.

## CNNB ASSEMBLY

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **SWITCHES** | | | |
| | S201 | | VSKI017 |
| **RESISTORS** | | | |
| | ALL RESISTORS | | RD1/6PM□□□J |
| **OTHERS** | | | |
| | CN203 | | VKN1138 |
| | CN204 | | VKN1139 |

## HEAD ASSEMBLY

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **CAPACITORS** | | | |
| | C4 | | CKSQYF104Z25 |
| | C6 | | CKSQYF104Z25 |
| | C3 | | CKSQYF223Z50 |
| | C5 | | CKSYF105Z16 |

## SLMB ASSEMBLY

There is no supply part in this assembly.

# 7. ADJUSTMENTS

## 7.1 ADJUSTMENT OF LD PLAYER SECTION

### 7.1.1 Preparations • Precautions

#### 1. Test Mode

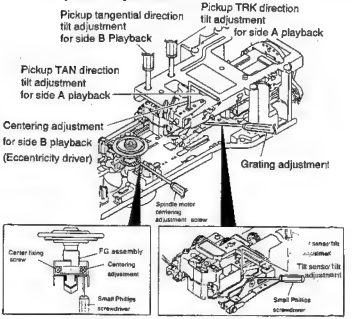
1) How to start up the test mode

Ground the test mode pin [pin 13 of the system control IC (KUC: IC101/VDEM unit, SEM: IC751/FTSB unit)] when the mechanism is not operating while the power is on.

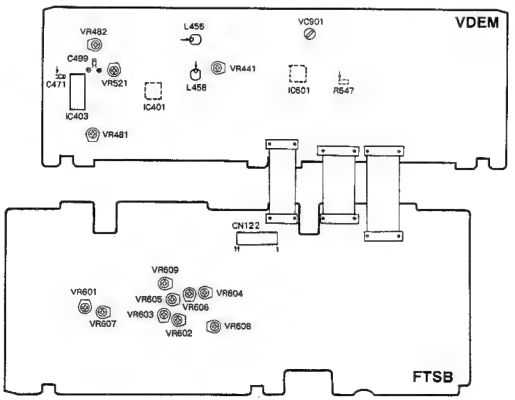
2) Test mode functions used in this adjustment

| — Function — | Keys used |
|---|---|
| TRKG servo open/close | ▶ (toggle) |
| Tilt servo off (–/+) | ⏮ / ⏭ |
| Focus balance | þ key (*) |

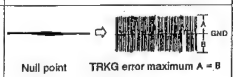
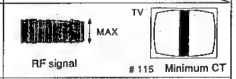
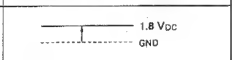
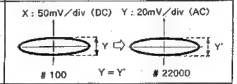
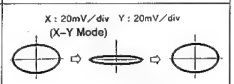
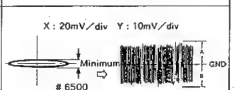
#### 3. Positions for Inserting Driver in Mechanical System Adjustments



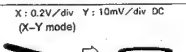
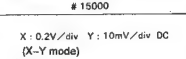
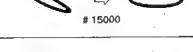
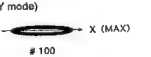
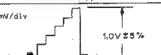

#### 2. Unit Adjustment Diagram (LC-V200/KUC)



### 7.1.2 Adjusting Specifications Table

| No. | Adjusting Method | Adjusting Point | Type of Measuring Equipment and Connecting Section | Condition of Player | Adjusting Method | Waveform |
|---|---|---|---|---|---|---|
| FTSB (FTS section) UNIT | | | | | | |
| 1 | Tilt servo gain adjustment | • VR608 | (Measuring equipment is not used.) | • Power supply switch OFF | • Adjust VR608 as follows, according to the mark at the side of the tilt sensor<br>Red …Rotate VR608 in the clockwise direction fully.<br>None…Adjust VR608 to the mechanical center.<br>Blue …Rotate VR608 in the counterclockwise direction fully. |  |
| 2 | Tilt off set adjustment | • VR607 (TILT OFST) | • TV monitor<br>Test mode display | Test mode<br>Stop | • Adjust VR607 so that tilt the error display becomes "7" | |
| 3 | • Grating coarse adjustment<br>• TRKG balance adjustment | • Grating<br>• VR602 (TRKG BAL.) | • Oscilloscope<br>• FTSB unit<br>CN122–9 (TR ERR) | • Test mode<br>• TRKG servo open | • Adjust to TRKG servo open in the vicinity of #6500.<br>• TRKG error waveform: Null point → Counterclockwise direction, maximum error level<br>• Adjust VR602 so that the positive and negative amplitudes of the TRKG error waveform become equal. |  |
| 4 | • Slider shaft horizontal adjustment | (In the test mode condition)<br>Press the ▶▶I/I◀◀ key. | • Oscilloscope<br>• FTSB unit<br>CN122–4 (FO RTN)<br>• Low pass filter<br>(47 kΩ , 1 μF) | • Test mode<br>• TRKG servo open<br>• Tilt servo OFF | • Adjust to still condition at #9800 and #25000, measure the FOCS RTN voltage at each section, and adjust the voltage difference to within 0 ± 20 mV. | |
| 5 | • Pickup (TAN/TRK) tilt adjustment | • TAN/TRK tilt adjustment screw | • Oscilloscope<br>• FTSB unit<br>CN122–3 (RF) | • Test mode<br>• #115 still<br>• Tilt servo OFF | • Adjust the pickup TAN/TRK direction tilt adjustment screw so that the RF waveform level becomes maximum.<br>Check that there is no crosstalk at #115. |  |
| 6 | • FOCS balance adjustment | • VR605 (TE MAX)<br>• VR606 (CT MAX) | • Oscilloscope<br>• FTSB unit<br>CN122–3 (RF)<br>• CN122–9 (TR ERR) | • Test mode<br>• TRKG servo close/open<br>• Tilt servo OFF | • Adjust VR605 so that the TRKG error waveform becomes maximum. (TRKG servo open)<br>• Adjust the RF waveform level to maximum using VR606. (TRKG servo close) |  |
| 7 | • FOCS SUM level adjustment | • VR609 (FOCS SUM LEVEL) | • Oscilloscope<br>• FTSB unit<br>• CN122–11 (FO SUM) | • Test mode<br>• TRKG servo close<br>• Tilt servo OFF | • Adjust VR609 so that the FOCS SUM level becomes 1.8VDC. |  |
| 8 | • Tilt sensor tilt adjustment<br>• Tilt balance adjustment | • Tilt sensor tilt adjustment screw<br>• VR607 (TILT OFST) | TV Monitor<br>Test mode display | • Test mode #19,000/#115 still<br>• TRKG servo loop close<br>• Tilt servo OFF | • Still at #19,000<br>• Adjust VR607 to the center.<br>Adjust the tilt adjustment screw so that the tilt error display becomes 6 to 8. Still at #115<br>• Adjust VR607 so that the tilt error display becomes 7. | |
| 9 | • Spindle motor centering check | • Check the resurge waveform with an oscilloscope | • Oscilloscope<br>CH1: CN122–9<br>(TR ERR)<br>CH2: CN122–1, 2<br>Each creates TRK A+C via a 10 kΩ resistor. | • Test mode<br>• TRKG servo open<br>• Tilt servo ON | • Adjust to TRKG servo open in the vicinities of #100 and #22000, and check that the shapes of the resurge waveforms become equal. |  |
| 10 | • Spindle motor centering adjustment | • Spindle motor centering adjustment screw | • Oscilloscope<br>CH1: CN122–9<br>(TR ERR)<br>CH2: CN122–1, 2<br>Each creates TRK A+C via a 10 kΩ resistor. | • Test mode<br>• TRKG servo open<br>• Tilt servo ON | • Adjust the spindle motor centering adjustment screw to TRKG servo open in the vicinities of #100 and #22000, and adjust so that the shapes of the resurge waveforms become equal. |  |
| 11 | • Grating fine adjustment<br>• TRKG balance adjustment | • Grating<br>• VR602 | • Oscilloscope<br>CH1: CN122–9<br>(TR ERR)<br>CH2: CN122–1, 2<br>(TRK A+C)<br>Each creates TRK A+C via a 10 kΩ resistor. | • Test mode<br>• TRKG servo open<br>• Tilt servo ON | • Adjust to TRKG servo open in the vicinity of #6,500.<br>• Minimize the amplitude of the resurge waveform in the Y direction.<br>• Adjust so that the negative and positive levels of the TRKG error waveform become equal. |  |

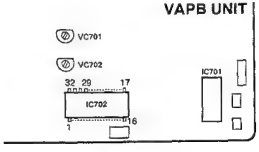
**Note:** The connector number for CLD–LCV200 (LC–V200) has been specified as CN122 in "Type of Measuring Equipment and Connecting Section". Take note that the connector number for CLD–LCV100 (LC–V100) is CN120.

| No. | Adjusting Method | Adjusting Point | Type of Measuring Equipment and Connecting Section | Condition of Player | Adjusting Method | Waveform |
|---|---|---|---|---|---|---|
| 12 | RF gain adjustment | VR601 (RF LEVEL) | • Oscilloscope<br>CH1: CN122–3 (RF) | • Test mode<br>• #15000 still<br>• TRKG servo close<br>• Tilt servo ON | • Adjust VR601 so that the amplitude of the RF signal becomes 300 mV ± 50 mV. |  |
| 13 | FOCS servo loop gain adjustment | VR604 (FOCS GAIN) | • Oscilloscope<br>CH1: CN122–6 (FO ERR)<br>CH2: CN122–7 (FO IN)<br>• CH1 is connected via a 47 kΩ resistor. | • Test mode<br>• #15000 still<br>• TRKG servo close<br>• OSC. 1.7 kHz/6 Vp–p<br>• Tilt servo ON | • Adjust VR604 so that the resurge waveforms in the X and Y directions become symmetrical (horizontal). |  |
| 14 | TRKG servo loop gain adjustment | VR603 (TRKG GAIN) | • Oscilloscope<br>CH1: CN122–9 (TR ERR)<br>CH2: CN122–10 (TR IN)<br>• CH1 is connected via a 47 kΩ resistor. | • Test mode<br>• #15000 still<br>• TRKG servo close<br>• OSC. 3.0 kHz/6 Vp–p<br>• Tilt servo ON | • Adjust VR603 so that the resurge waveforms in the X and Y directions become symmetrical (horizontal). |  |
| 15 | Side B playback start position check<br>Side B playback centering adjustment | Side B centering adjustment screw | • Oscilloscope<br>CH1: CN122–9 (TR ERR)<br>CH2: CN122–1,2 (TRK A+C)<br>Each creates TRK A+C via a 10 kΩ resistor. | • Test mode<br>• Side B<br>• TRKG servo open | • Adjust to TRKG servo open in the vicinity of #100, and adjust the side B centering adjustment screw so that the amplitude of the resurge waveform in the Y direction is minimum. |  |
| 16 | Side B playback pickup tangential direction tilt adjustment | Pickup tangential direction tilt adjustment screw | TV monitor | • Side B<br>• #115 still | • Adjust the pickup tangential direction tilt adjustment screw so that the crosstalk becomes minimum. |  |
| 17 | Side B playback centering fine adjustment | Side B centering adjustment screw | • Oscilloscope<br>CH1: CN122–9 (TR ERR)<br>CH2: CN122–1, 2 (TRK A+C)<br>Each creates TRK A+C via a 10 kΩ resistor. | • Test mode<br>• Side B<br>• TRKG servo open | • Adjust to TRKG servo open in the vicinity of #100, and adjust the side B centering adjustment screw so that the amplitude of the resurge waveform in the X direction becomes maximum. |  |
| VDEM (TBC section) UNIT (LC – 200/KUC only) | | | | | | |
| 18 | Standard frequency adjustment | VC901 (REFFERENCE FREQ.) | • Frequency counter<br>End of R647 | • Stop mode | • Adjust VC901 so that the frequency becomes 3.579545 MHz. | |
| VDEM (VIDEO section) UNIT (LC – 200/KUC only) | | | | | | |
| 19 | VCO center frequency adjustment | VR481 (VCO FREQ.) | • Oscilloscope<br>CH1: C471 lead wire<br>CH2: C499 +Side lead wire (Delay line) | • #5100 still | • Adjust VR481 so that the video signal of CH1 is delayed 73 µs in respect to the video signal of CH2. |  |
| 20 | Output video level adjustment | VR482 (VIDEO LEVEL) | • Oscilloscope<br>Video output terminal | • #19900 still | • Adjust VR482 so that the level from the sync chip of the video signal to the white peak becomes 1V ± 5%. |  |
| 21 | 1H delay video level adjustment | VR441 (1H LEVEL) | • Oscilloscope<br>CH2: L458 lead wire (1H delay line)<br>CH1: L456 lead wire | • #3800 still | • Adjust VR441 so that the 1H delay video signal level of CH2 becomes equal to the main video signal level of CH1. |  |
| 22 | Hue error signal level adjustment | VR521 (VPS LEVEL) | TV monitor | • #8000 still | • Adjust VR521 so that the color irregularity of the magenta display becomes minimum. |  |

### 7.1.3 VAPB UNIT ADJUSTMENT

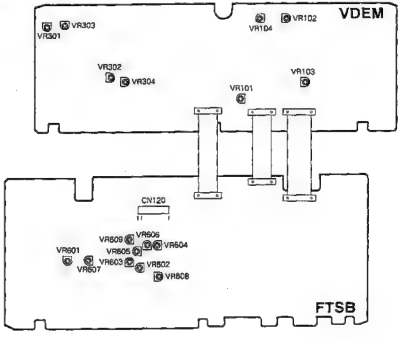
| No. | Adjustment | Adjusting Point | Adjusting Specifications | Inspection Standard | Remarks |
|---|---|---|---|---|---|
| | VAPB UNIT | | | | |
| 1 | Character generator clock adjustment | VC701 | Adjust VC701 for 14.31818MHz at pin 29 IC702. | 14.31818MHz ± 500Hz | (*1 ) |
| | | VC702 | Adjust VC702 for 17.73447MHz at pin 29 IC702. | 17.73447MHz ± 500Hz | SEM type only |

(*1): When performing this adjustment on the SEM model, switch the 2 (S302) SW on the DISP UNIT from PAL to NTSC. (It will be set to PAL (17M) when the TEST MODE is started up. For details, refer to "Table 4" on page 209.)




Adjusting point

● Unit Adjustment Diagram (LC-V100/SEM)



## 7.2 ELECTRICAL ADJUSTMENTS (LC-V100/SEM only)

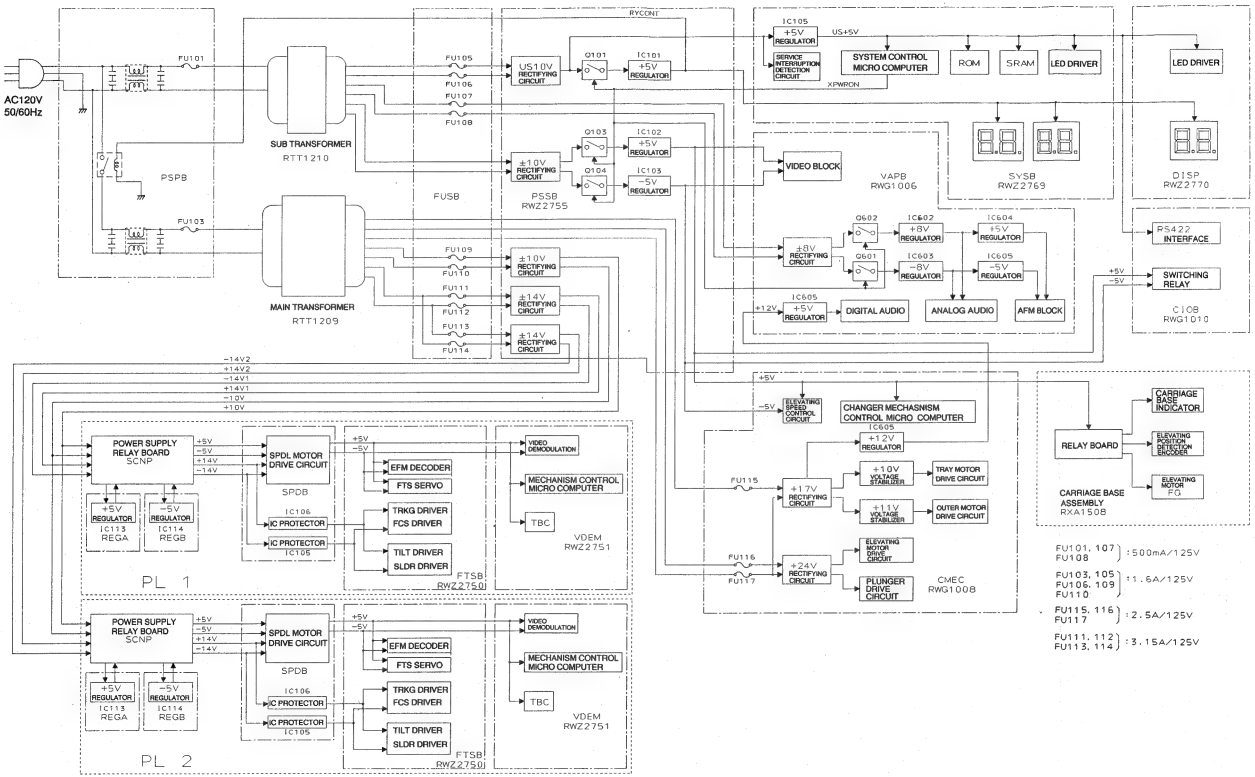
*Note: This unit automatically switches between the NTSC and PAL systems by reading the Phillips code on the test disc. Use the GGV-145 PAL disc for the items marked for PAL mode in the Remarks column and the GGV1003 NTSC disc for the items marked for NTSC mode.*

| No. | Adjustment | Adjusting Point | Adjusting Specifications | Inspection Standard | Remarks |
|---|---|---|---|---|---|
| | VDEM (PALB section) UNIT | | | | |
| 1 | Sync-generator Clock Adjustment | VC301 | Adjust VC301 for 17.734475MHz at pin 3 IC307. | 17.734475MHz ± 100Hz | PAL mode |
| 2 | NTSC REF Clock adjustment | VC302 | Adjust VC302 for 14.31818MHz at pin 6 IC302. | 14.31818MHz ± 100Hz | NTSC mode |
| 3 | REF Clock Adjustment | VC303 | Adjust VC303 for 3.5546875MHz at pin 8 IC501. | 3.5546875MHz ± 25Hz | PAL mode |
| | VDEM (VIDEO section) UNIT | | | | |
| 4 | VCO Center Frequency Adjustment | VR102 |  Adjust VR102 so that the time lag between CCD input video (Q109 emitter) and the CCD output video (Q114 emitter) becomes 70 μsec (1H + 6 μsec). For this adjustment, connect pin 9 of IC104 to GND. | 70 μsec ± 1.4 μsec | PAL mode |
| 5 | Video Level Adjustment | VR103 |  Adjust the 100 % white video level to 2 Vp-p at VIDEO OUT (Q123 emitter). | 2Vp-p ± 5% | PAL mode |
| 6 | 1H Delay Video Level Adjustment | VR101 | Adjust VR101 so that the level of the 1H-delay video at pin 33 of IC101 becomes the same as that of the main-line video pin 35. | Main-line video ± 3% | PAL mode |
| 7 | VPS ERR Level Adjustment | VR104 | While observing the magenta screen on a vector scope, minimize the jitter at VIDEO OUT (pin 1 CN102). | | PAL mode |
| | VDEM (PALB section) UNIT. | | | | |
| 8 | MOD Video Level Adjustment | VR304 | Adjust VR304 so that the luminance level of the MOD video at pin 13 of IC311 becomes the same as that of the through video at pin 12. | ± 3% | PAL mode |
| 9 | 1H Delay S.C. Level Adjustment | VR302 | While observing color bars in still mode on a vector scope, minimize the gain variation at VIDEO OUT (Pin 1 CN102). | | PAL mode |
| 10 | MOD Y Level adjustment | VR303 | Adjust VR303 so that the luminance level at pin 13 of IC310 (passed through the comb filter) becomes equal to that at pin 12 of IC 310 (passed through the 3.2M L. P. F.). | ± 3% | NTSC converter mode |
| 11 | MOD SC Level adjustment | VR301 | Adjust VR301 so that the converter chroma level at IC310 pin 1 becomes the same as the main chroma level at IC310 pin 2. | | NTSC converter mode |

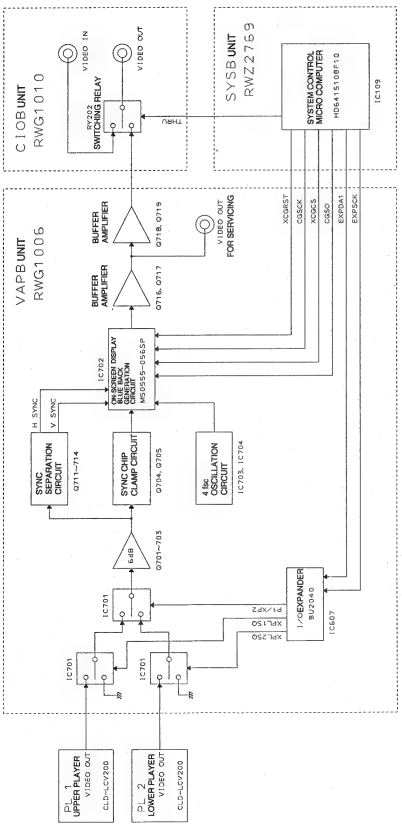
# 8. BLOCK DIAGRAMS

## 8.1 LC-V200/KUC type

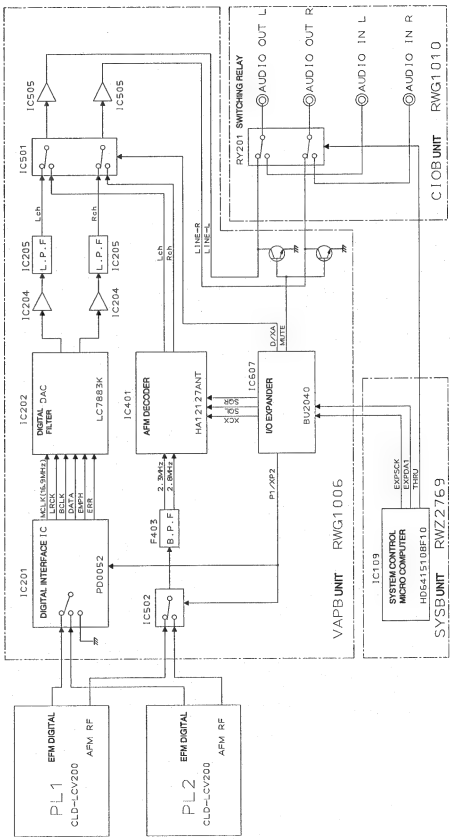
### ● POWER SUPPLY BLOCK DIAGRAM



## ● VIDEO BLOCK DIAGRAM

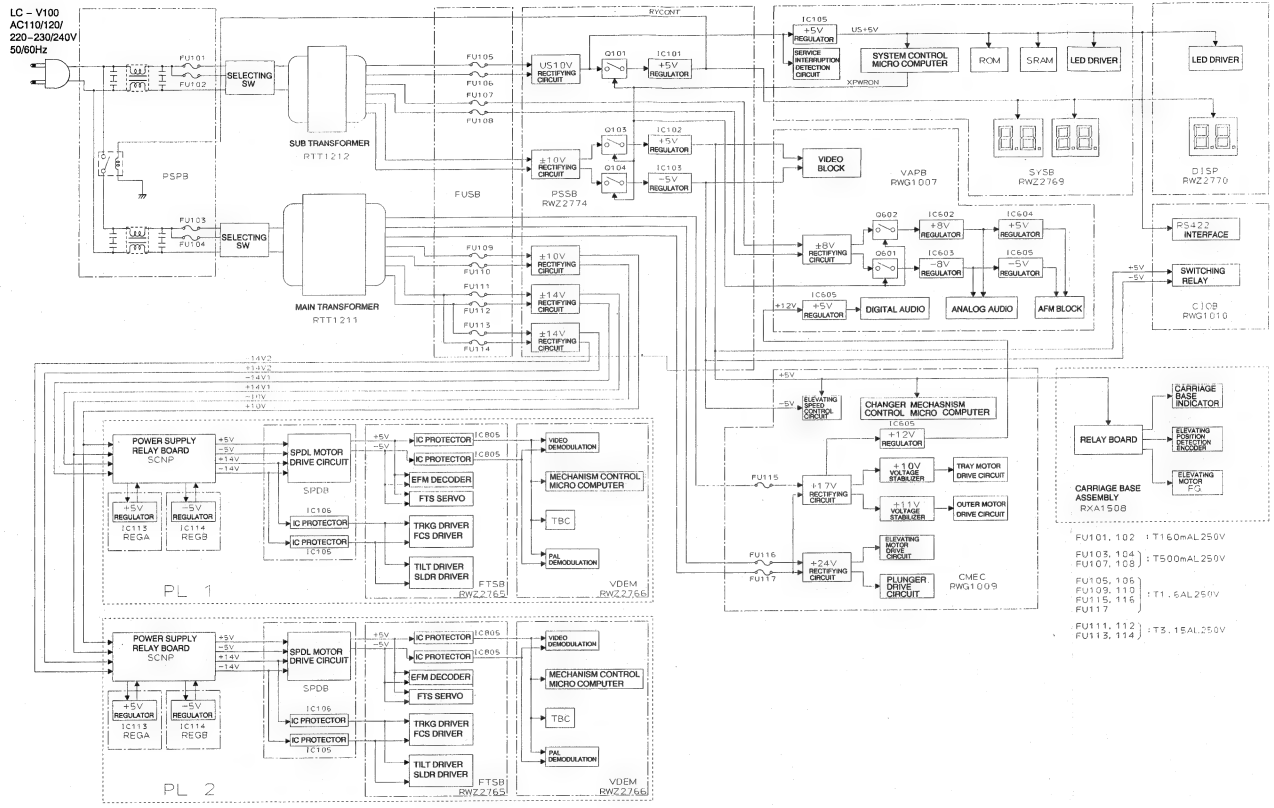



## ● AUDIO BLOCK DIAGRAM

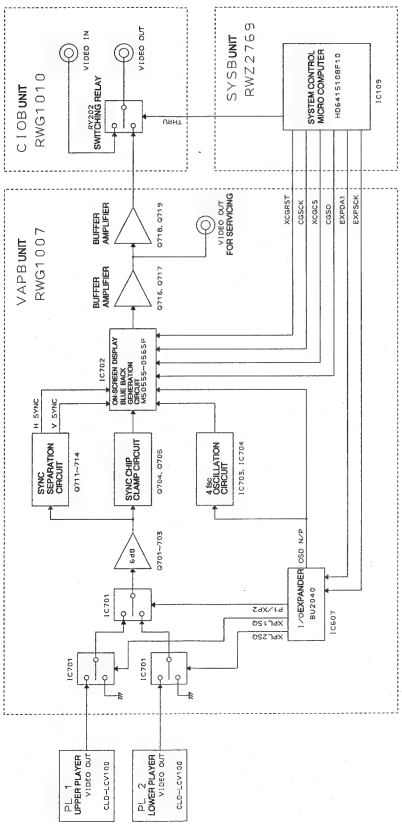


## 8.2 LC-V100/SEM type

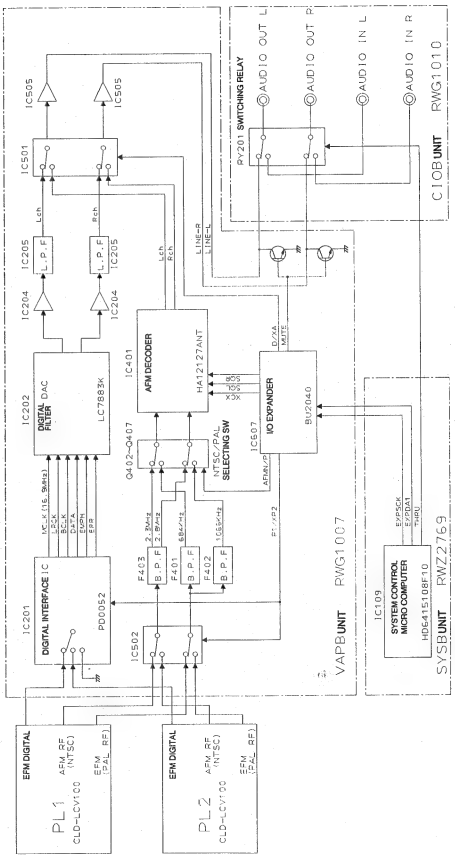
### ● POWER SUPPLY BLOCK DIAGRAM



## ● VIDEO BLOCK DIAGRAM




## ● AUDIO BLOCK DIAGRAM



# 9. TEST MODE

## 9.1. MODE TRANSITION DIAGRAM

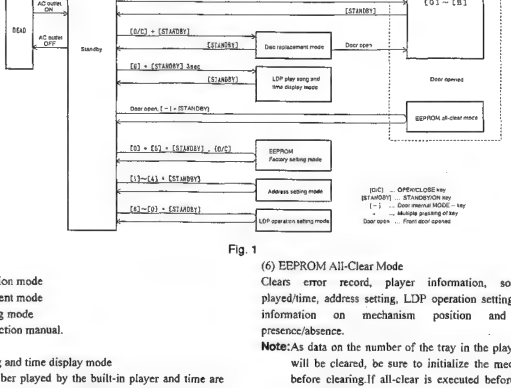



Fig. 1

## 9.2. MODE

(1) System operation mode

(2) Disc replacement mode

(3) Address setting mode

Refer to the instruction manual.

(4) LDP play song and time display mode

The song number played by the built-in player and time are displayed on the OSD. For details of displays, refer to the description for test mode 9.

[Displaying]

①In the standby state, while pressing the [6] key, continue pressing the [STANDBY/ON] key for approximately 3 seconds.

②Turn on the power of the commander. (Displayed on the monitor connected via the commander.)

○Press the [STANDBY/ON] key to end. (Returns to the standby state.)

(5) EEPROM Factory Setting Mode

Clears error record, player information, song number played/time, address setting, LDP operation setting. (However, information on disc presence/absence and on mechanism position will not be cleared.)

[Setting]

①In the standby mode, while pressing the [0] and [5] keys together, press the [STANDBY/ON] key. [CC] will blink for approximately 3 seconds.

②Press the [OPEN/CLOSE] key while [CC] is blinking. ([CC] will lights up for approximately 8 seconds.)

(6) EEPROM All-Clear Mode

Clears error record, player information, song number played/time, address setting, LDP operation setting, as well as information on mechanism position and on disc presence/absence.

**Note:** As data on the number of the tray in the player and outer will be cleared, be sure to initialize the mechanism first before clearing.If all-clear is executed before initializing the mechanism, the mechanism will not be initialized properly in the future.

[Setting]

①In the standby state, open the front door.

②While pressing the [−] key inside the door, press the [STANDBY/ON] key.

([AC] display ····· After blinking for approximately 3 seconds, lights up for approximately 3 seconds.)

(7) LDP Operation Setting Mode

When the LDP cannot operate, it displays error messages and at the same time, automatically switches to the operations of one LDP and operates one player.

Set "only one LDP" when it is clear that the LDP has broken down and is to be removed from the main unit for repair. This prevents error messages from being displayed and error records from being repeated.

[Setting]

In the standby state, while pressing the following keys, press the [STANDBY/ON] key.

[8]····Operates both LDP1 and LDP2.
[P.A]will be displayed for approximately 3 seconds.

[9]····Operates only LDP1.
[P.1] will be displayed for approximately 3 seconds.

[0]····Operates only LDP2.
[P.2] will be displayed for approximately 3 seconds.

- **The following are information required for diagnosing faults when errors have occurred.**

Error code (Refer to Table 5 on page 209.) ..... The error code generated currently is displayed blinking inside the front operating panel.

Disc No.
Changer mechanism mode (Refer to Tables 7 and 8 on page 210.)
Vertical address
..... Detailed data accompanying the error code. Displayed on the OSD and the LED inside the door in test mode 6. (Refer to page 213.)

- **Other than errors, there are also information such as reasons why the player cannot play by itself, etc.**

PL information code (Refer to Table 6 on page 210.)
Disc No.
..... Displayed on the OSD and the LED inside the door in test mode 5. (Refer to page 213.)

## 9.3 TEST MODE SPECIFICATIONS

### 9.3.1 SETTING AND RELEASING TEST MODES

[SETTING]
Open the front door during standby, and press the standby/on key for a few seconds to turn on the power supply. Or, open the front door while the power is on.

[RELEASING]
Press the standby/on key to set the unit into standby.

### 9.3.2 LIST OF FUNCTIONS

| Mode | Function | Operations and Displays | | | | |
|---|---|---|---|---|---|---|
| | | +/− | ↑ | ↓ | ← | → |
| 1 | PL1 | [−] | Disc selection − | Disc selection + | Disc returns/stop | Disc setting/playback |
| 2 | PL2 | | | | | |
| 3 | Changer (Manual) | ↑ | Carrier rises | Carrier descends | Rack direction | Carrier direction |
| 4 | Changer (Initial) | | Carrier rises | Carrier descends | Operation stops | Initial operation |
| 5 | PL information | | Address − | Address + | ———— | Disc no. |
| 6 | Error record | | | | Operation mode | Disc no. |
| 7 | Error clear | | | | Error record clear | PL information clear |
| 8 | Display/Key | | All those inside light up | All those outside light up | Those inside light up in order | Those outside light up in order |
| 9 | No. of songs played back, Time | ↓ | Menu selection − | Menu selection + | PL1 clear | PL2 clear |
| A | Communication Monitor | | | | ———— | ———— |
| B | Auto Test | [+] | | | Operation stops | Operations start |

Table. 1

### ● FRONT PANEL OPERATIONS

(DURING NORMAL MODE/STANDBY)

| Function | | Operation | Display |
|---|---|---|---|
| Disc setting/replacement | | [O/C] + [STANDBY/ON] | 01 blinks |
| Address setting | 1 | [1] + [STANDBY/ON] | A.1 |
| | 2 | [2] + [STANDBY/ON] | A.2 |
| | 3 | [3] + [STANDBY/ON] | A.3 |
| | 4 | [4] + [STANDBY/ON] | A.4 |
| Player operation | AUTO/one side | [8] + [STANDBY/ON] | P.A |
| | Only PL1 | [9] + [STANDBY/ON] | P.1 |
| | Only PL2 | [0] + [STANDBY/ON] | P.2 |
| Test Mode | | Door opens [STANDBY/ON] 3 sec. | ———— |

* [n] + [STANDBY/ON] : Press [STANDBY/ON] key while pressing [n] key.
n : Numerical key

Table. 2

(DURING NORMAL MODE/POWER ON)

| Function | Operation | Inside the front operating panel display |
|---|---|---|
| When error occurs | | Error code |
| | [7] | Error code (Multi error) |
| | [8] | Error code (Multi error) |
| | [9] | Error code (Multi error) |
| Test Mode | Door opens | ——— |

Table. 3

* The following operations can be carried out using the numerical keys when test mode 8 (display/key) is not set.

| Operating Key | Function | | Default |
|---|---|---|---|
| [1] | Rear output | ON/OFF | OFF |
| [2] | OSD display mode | NTSC/PAL | PAL |
| [3] | During NTSC disc playback | Pseudo PAL | Pseudo PAL |
| [4] | During NTSC disc playback | 4.43NTSC | |
| [5] | During NTSC disc playback | 3.58NTSC | |

For LC-V200, only the rear output can be switched.

Table. 4

【ERROR CODE LIST】

| No. | | Contents |
|---|---|---|
| -- | | No error |
| 02 | | Mis-count of vertical address |
| 04 | | Faulty vertical operations |
| 07 | | Time over of vertical operations |
| 08 | | Excessive vertical motor load |
| 09 | | Time over of outer tray operations |
| 12 | | Faulty EEPROM |
| 27 | | Time over of horizontal operations |
| 28 | | Time over of lock pin operation of carrier base |
| 41 | | Communication error (System microprocessor ⟷ Changer mechanism microprocessor) |
| 42 | | Communication error (System microprocessor ⟷ Player 1 microprocessor) |
| 43 | | Communication error (System microprocessor ⟷ Player 2 microprocessor) |
| 44 | | Faulty changer mechanism microprocessor |
| 45 | | Faulty disc sensor |
| 46 | | Player 1 cannot play back (Only test mode B) |
| 47 | | Player 2 cannot play back (Only test mode B) |
| PL1 | PL2 | ——— |
| 96 | D6 | Time over of clamp release |
| 97 | D7 | Time over of clamp operations |
| A7 | E7 | Time over of Side A/Side B switching operations |
| A8 | E8 | Time over of Side A slider operations |
| A9 | E9 | Time over of Side B slider operations |
| B3 | F3 | Time over of clamp release of player when power turned on |

Table. 5

【PL Information Table】

| PL1 | | PL2 | | Contents |
|---|---|---|---|---|
| Side A | Side B | Side A | Side B | |
| 80 | 88 | C0 | C8 | TRANSIT SW has been detected. |
| 81 | 89 | C1 | C9 | Cannot focus, when determined as no discs |
| 83 | 8B | C3 | CB | Read-out occurred when search attempted |
| 84 | 8C | C4 | CC | No chapter when search attempted |
| 85 | 8D | C5 | CD | Spindle cannot lock when start up |
| 86 | | C6 | | Different side from command played back (Disc reversed) |
| 87 | 8F | C7 | CF | Time over of disc start up operations |
| 90 | 98 | D0 | D8 | Mis-clamp |
| 92 | 9A | D2 | DA | Focus lost when start up |
| B0 | B8 | F0 | F8 | Time over of search operations |
| B5 | BD | F5 | FD | Cannot continue playback |
| B6 | BE | F6 | FE | Time over of TOC read operations |

Table. 6

【OPERATION MODE】

(1) Operations of changer mechanism (When error codes are other than 12.)

| Mechanism Mode (Upper digits) | | Carrier Mode (Lower digits) | |
|---|---|---|---|
| 0 | Not used | 0 | Data standby |
| 1 | Mechanism initial | 1 | Carrier base upper initial |
| 2 | Sets disc in player | 2 | Carrier base lower initial |
| 3 | Returns disc from player | 3 | Horizontal direction initial |
| 4 | Replaces disc (Extracts) | 4 | Transfers to player 1 |
| 5 | Replaces disc (Storage) | 5 | Transfers to player 2 |
| 6 | Replaces disc (Stands by for outer tray) | 6 | Transfers to outer position |
| 7 | Carrier base standby | 7 | Transfers to rack (No.1 to 50) |
| 8 | Test mode | 8 | Pulls tray out onto carrier base |
| 9 | Not used | 9 | Sets tray on carrier base |

* The operation mode is displayed in 2 digits. The upper digit displays the mechanism mode, the lower digit the carrier mode.

Table. 7

(2) When error code is 12 (EEPROM is faulty)

Indicates which data was being accessed when the error occurred.

| | | | |
|---|---|---|---|
| 1 | Tray position writing (1) | 9 | Player 2 play song number writing |
| 2 | Tray position writing (2) | 10 | Play song number writing |
| 3 | Tray position writing (3) | 11 | Player 1 play time writing |
| 4 | Mechanism error writing | 12 | Player 2 play time writing |
| 5 | Player information writing | 13 | Player total play time writing |
| 6 | Disc presence/absence writing | 14 | Motor cooling timer writing |
| 7 | Address/player operations writing | 80 | Reading at initial stage |
| 8 | Player 1 play song number writing | | |

Table. 8

### 9.3.3 TEST MODE

(1) Operations

During the test mode, the switches on the board inside the front door are mainly used for operating.

Expandibility has been attained using the keys and the remote control unit for service in the ceiling panel.

(2) Selections

Selections are made using the + and − keys inside the front door. The test mode number is displayed at the top digit of the 7 segment 4 digits nearby.

a : Test mode number
b : Address, etc.
c, d : Data, etc.

### 9.3.4 PLAYER 1 (UPPER PLAYER) MODE (Display a:1)

### 9.3.5 PLAYER 2 (LOWER PLAYER) MODE (Display a:2)

(1) Select the disc to be played back (tray number) using the ↑ and ↓ keys. (Display c, d:00 to 50)

(2) Start the automatic setting in the player/playback of the disc using the → key.

(3) Stop the disc being played back, and return to the rack using the ← key.

* The unit can be operated normally by setting a disc in the player, and connecting the service remote control unit to the jack (JA101) of the SYSB unit by wiring.

PLAY, STOP, PAUSE, SKIP, SCAN, STILL, STEP, SEARCH, SIDE, etc.

Press the → key.

- If there are no disc (tray) in the player, sets the discs selected by the ↑ and ↓ keys in the player.
- If the player contains the disc (tray), sets the player into the playback mode.

Press the ← key.

- If the player is in the playback mode, stops the disc.
- If the disc (tray) in the player is during stop, returns the disc (tray) to the rack.


a : Test mode number (1) or (2)
b : —
c, d : Disc number (blinks during selection)
(↑, ↓ keys: For selecting disc no.)

```
TEST 1        Player1

①DISC         --        NTSC
②SIDE         A         CLV
③CHAP         00
④FR/TIME          0.00
⑤AUDIO    Digital stereo
⑥TV. sys      NTSC

⑦STOP
```

Fig. 2

① DISC (Disc number set in the player)

| | |
|---|---|
| — — | : No discs |
| 00 | : Disc in standard tray |
| 01 to 50 | : Disc in changer tray |

② SIDE (Disc side during playback)

[During stop and initial, side A]

| | |
|---|---|
| A | : Side A |
| B | : Side B |
| A ▶ B | : Turning from side A to side B (During play) |
| B ◀ A | : Turning from side B to side A (During play) |

③ CHAP (chapter/track during playback)

[00 during stop and initial]

| | | |
|---|---|---|
| LD | CHAP | : Chapter no. (00 to 79) |
| | | : No chapter ( — — ) |
| CD/CDV | TRK | : Track no. (01 to 99) |

④ FR/TIME (frame/time during playback) [00 during stop]

| | | |
|---|---|---|
| LD (CAV) | FRAME | : Frame no. (00001 to 54000) |
| LD (CLV) | TIME | : Time [with seconds] (h:mm. ss) |
| | TIME | : Time [No seconds.] (h:mm. ) |
| CD/CDV | TIME | : Time (h:mm. ss) |

⑤ AUDIO (Audio switching)

| | |
|---|---|
| Digital | : Digital audio |
| cx on | : Analog audio (CX on) |
| cx off | : Analog audio (CX off) |
| | |
| Stereo | : Stereo |
| 1/L | : Audio 1/left |
| 2/R | : Audio 2/right |

⑥ TV sys (TV system) [Only LC-V100]

| | NTSC During disc | PAL During disc |
|---|---|---|
| NTSC | NTSC | PAL |
| 4.43 NTSC | 4.43NTSC | PAL |
| M. PAL | M. PAL | PAL |
| (Pseudo PAL) | | |

The disc discrimination is displayed only during playback.

| | |
|---|---|
| NTSC | : NTSC system disc |
| PAL | : PAL system disc |
| CAV | : Standard disc |
| CLV | : Extended-time disc |

⑦ Operation mode display

STOP

PLAY (Including operations which transfer the mode to "PLAY")

PAUSE

STILL (Only CAV disc)

SEARCH 12 34. 56 (Chapter/track or frame/time during search)

Press the [ESC] key and then the [TEST] key of the test remote control unit to set the test mode of the player.
Only the remote control unit is valid during the test mode.

```
TEST 2          Player2
  ◀PL. test mode▶

①0162A          ④A  ⑤K-7F
②T-4:N              ⑥M-0
③TRK-OFF            ⑦S-LD
                    ⑧F-0
⑨MODE-00:00
                    :remote:
```

Fig. 3

① 0162A
Player servo mechanism controller (microprocessor) version
Displays frame or time during playback

② T Tilt
- 0 to C : Position of tilt
- N : Neutral
- ON : on
- OFF : off

③ TRK Tracking on/off

④ A Disc side
- A : Side A
- B : Side B

⑤ K Remote control unit key input
(Refer to Table. 10: Page 217)
- 7F : No key input

⑥ M Loading position (0 to 9)
- 0 : OPEN
- 1 : LOADING
- 2 : STANDBY
- 3 : CLAMP
- 4 : Not used
- 5 : TILT −
- 6 : Not used
- 7 : TILT+
- 8 : LIMIT
- 9 : B CLAMP

⑦ S Slider position
- IN
- CD
- CDV
- LD

⑧ F Focus balance mode
- 0 : During normal playback
- 1 : During jump

⑨ MODE Operation internal mode and step
(Refer to Table. 11–17: Page 217–220)

### 9.3.6 CHANGER (MANUAL) MODE (Display a:3)

(1) Select a vertical address (tray number) using the ↑ and ↓ keys. (Display c, d:00 to 50)
(2) Set the tray in the carrier using the → key.
(3) Return the tray on the carrier to the rack using the ← key.

[TEST 3]


a : Test mode number (3)
b : —
c, d : Vertical address (blinks during selection)

```
TEST 3          Changer

①PL1    disc:  --
②PL2    disc:  --
③TRAY   disc:  00   :closed⑦
④CARR   disc:  --
⑤V. POS      :  20
⑥mode        :  80

                    ⑧PD4360C
```

Fig. 4

① PL1 disc (Tray no. in player 1)
② PL2 disc (Tray no. in player 2)
③ TRAY disc (Tray no. in the outer position)
④ CARR disc (Tray no. on the carrier)
- −− : Non
- 00 : Standard tray
- 01 to 50 : Changer tray

⑤ V. POS (Vertical position)
- P1 : Position of player 1
- 00 : Outer position
- 01 to 50 : Position of rack
- P2 : Position of player 2
- −− : Irregular

⑥ mode (Mechanism operation mode)
(Refer to Table. 7: Page 210)

⑦ closed (Outer tray operations)
- closed : Has closed
- closing : Closing
- opened : Has opened
- opening : Opening
- stop : Stopped halfway

⑧ PD4360C
Changer mechanism microprocessor version

### 9.3.7 CHANGER (INITIAL) MODE (Display a:4)

(1) Perform the vertical direction initial using the ↑ and ↓ keys.
(2) Start initial operations using the → key.
(Clears the current error, and performs initial operations.)
(3) Stop initial operations using the ← key.

[TEST 4]


a : Test mode number (4)
b : —
c, d : Vertical address

```
TEST 4          Changer Init

PL1   disc: --
PL2   disc: --
OUTR  disc: 00  :closed
CARR  disc: --
V. POS    : 20
mode      : 80

                        PD4360C
```

Fig. 5

The contents of the display are the same as Fig. 4.

### 9.3.8 PLAYER INFORMATION MODE (Display a:5)

(1) Select the address using the ↑ and ↓ keys. The player information will be displayed.
(Display b : address, Display c, d : player information)
(2) The disc no. (tray no.) is displayed while the → key is pressed.

[TEST 5]


a : Test mode number (5)
b : Address of player information ( ↑ and ↓ keys)
c, d : Information code ( → key : Disc no.)

```
TEST 5      PL. info.
    code  disc
 1. 83    05
 2. 90    10
 3. C5    00
 4. --
 5. --
 6. --
 7. --
 8. --
```

Fig. 6

code : Information code (Refer to Table. 6: Page 210)
disc : Current disc no.

| | |
|---|---|
| -- | No disc |
| 00 | Disc in standard tray |
| 01 to 50 | Disc in changer tray |

### 9.3.9 ERROR RECORD (Display a:6)

(1) Select the address using the ↑ and ↓ keys. The error information will be displayed.
(Display b:address, display c, d:error information)
(2) The disc no. (tray no.) is displayed while the → key is pressed.
(Display b:address, display c, d:tray no.)
(3) The operation mode is displayed while the ← key is pressed.
(Display b:address, Display c, d:operation mode information)

[TEST 6]




a : Test mode number (6)
b : Address of error record ( ↑ and ↓ keys)
c, d : Error code
(→ key:Disc no.)
(← key:Operation mode)

```
TEST 6      Error history
   ①code②disc③mode④posi
 1. 08    25      05      03
 2. 27    39      10      10
 3. A8    05
 4. 28    --      12      P1
 5. 86    12
 6. --
 7. --
 8. --
```

Fig. 7

① code:Error code (Refer to Table. 5: Page 209)

② disc : Current disc or tray no. in the player when player error has occurred or that during operations when mechanism error has occurred.

| | |
|---|---|
| -- | : No disc |
| 00 to 50 | : Disc no. (tray no.) |

③ mode : Current operation mode (Refer to Table. 7: Page 210)
(None during player error.)

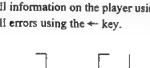
④ posi : Current vertical position (None during player error)

| | |
|---|---|
| P1 | : Position of player 1 |
| 00 | : Outer position |
| 01 to 50 | : Position of rack |
| P2 | : Position of player 2 |
| -- | : Irregular |

### 9.3.10 ERROR/INFORMATION CLEAR (Display a:7)

(1) Select the address using the + / − keys.
The error information will be displayed.
(2) Clear all information on the player using the → key.
(3) Clear all errors using the ← key.

[TEST 7]




a : Test mode (7)
b : —
c, d : (→ key : Clears player information)
(← key : Clears the error mode)
When the key is pressed, CL blinks for 3 sec., clears and then lights up for 2 sec.

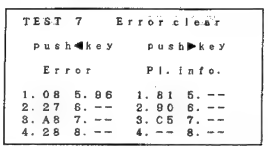


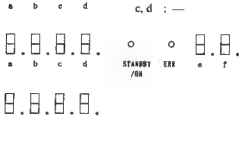

Fig. 8

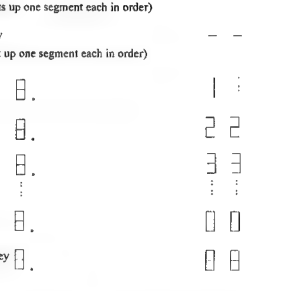
When the key to be cleared is pressed, all corresponding data will be cleared (--).

### 9.3.11 DISPLAY/KEY TEST (Display a:8)

(1) Light up all 7 segment 4 digit LEDs inside the door using the ↑ key.
(2) Light up all 7 segment 2 digit LEDs inside the ceiling panel using the ↓ key.
(3) Light up the 7 segment 4 digit LEDs inside the door in order using the ← key.
(4) Light up the 7 segment 2 digit LEDs inside the ceiling panel in order using the → key.
(5) Display the number input at the 7 segment 2 digit LEDs inside the ceiling panel using the numerical keys.

[TEST 8]



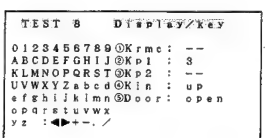




Fig. 9

0 to 9, A to Z, a to z, and □ to / are the test outputs of the data for screen displays.

① Kmc Remote control unit key data (Service remote control unit connected to SYSB unit)
The data code is displayed when the A8 (Pioneer commercial LD) code is input.
− − : (No input)

② Kp1 When upper keys inside the ceiling panel are pressed, the corresponding key name is displayed.
1, 2, 3, 4, 5
− − : (Not pressed)

③ Kp2 When lower keys inside the ceiling panel are pressed, the corresponding key name is displayed.
6, 7, 8, 9, 0
O/C (Open/Close key)
− (Not pressed)

④ Kin When keys on the board inside the front panel are pressed, the corresponding key name is displayed.
up, down, left, right, mode −, mode+
− − : (Not pressed)

⑤ Door The condition of the door is displayed in connection with the door switch.
open, close

### 9.3.12 NUMBER OF SONGS PLAYED BACK, PLAYBACK TIME DISPLAY (Display a:9)

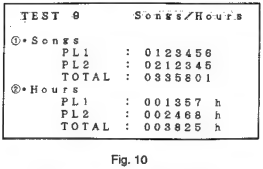



Fig. 10

① Songs (No. of songs played back)
PL1 (No. of songs played back by player 1)
PL2 (No. of songs played back by player 2)
TOTAL (Total no. of songs played back by players 1 and 2)
No. of playbacks : When each player switches from stop to playback or stop to standby. (No counting in the test mode (including aging))

② Hours (Playback time)
PL1 (Playback time of player 1)
PL2 (Playback time of player 2)
TOTAL (Total playback time of players 1 and 2)
Playback time : When each player is not in the clamp off condition. (No counting in the test mode (including aging))

When the [ ← ] key is pressed for 3 sec. in this mode, the no. of songs played back by player 1 and the playback time will be cleared. When the [ → ] key is pressed, those of player 2 will be cleared.

* The total no. of songs played back and the total playback time cannot be cleared. Regarding the playback time, as the internal counter counts within the hour, the total may not be the total of PL1 and PL2 in some cases.

### 9.3.13 COMMUNICATION MONITOR (Display a : A) : Design planning mod

[TEST A]




a : Test mode number (A)
b : Communication monitor of the changer microprocessor and system controller (OK : C lights up, NG : Blank)
c : Communication monitor of player 1 and the system controller (OK : 1 lights up, NG : Blank)

d : Communication monitor of player 2 and the system controller (OK : 2 lights up, NG : Blank)

[Communication Monitor Mode]


Fig. 11

* When the power supply for the commander is turned on with test A selected, the unit operates in the normal mode. However, the display will be shown constantly and other test modes cannot be set.

Monitors communication with the servo mechanism controller of player 1 and that with the servo mechanism controller, changer mechanism microprocessor and commander of player 2. Errors will be displayed when communication error occurs.

① 1 : "1" is displayed when the communication with player 1 is carried out normally.
② 2 : "2" is displayed when the communication with player 2 is carried out normally.
③ M : "M" is displayed when the communication with the changer mechanism microprocessor is carried out normally.
④ C : "C" is displayed when the communication with the commander is carried out normally.
* " – " is displayed when an error has occurred.

### 9.3.14 AUTO TEST/AGING

(1) Select the menu no. using the ↑ and ↓ keys.
(2) Set the menu no. using the → key.
(3) Start the operations using the → key.
(4) Stop the operations and perform initialization using the ← key.

[TEST B]


a : Test mode number (B)
b : Menu no. ( ↑ and ↓ keys)
c : • blinks while operating
d : —

```
 TEST B          Testing
      ①no. :  01
②PL1  disc :  14    A01
③PL2  disc :  15    A00
④TRAY disc :  00  :closed⑧
⑤CARR disc :  --
⑥V. POS    :  20
⑦mode      :  80

⑨CYCLES    :  001234
```

Fig. 12

① no. (Aging menu no. ) (Refer to Table. 9)

② PL1 disc (Tray no. in player 1.)
During play : Its side and chapter no.
– – : indicates disc without chapter

③ PL2 disc (Tray no. in player 2.)
During play:Its side and chapter no.
– – : indicates disc without chapter

④ TRAY disc (Tray no. inside the outer position)

⑤ CARR disc (Tray no. on the carrier)
– – : None
00 : Standard tray
01 to 50 : Changer tray

⑥ V. POS (Vertical position)
P1 : Position of player 1
00 : Outer position
01 to 50 : Position of rack
P2 : Position of player 2
– – : Irregular

⑦ mode (Mechanism operation mode)
(Refer to Table. 7: Page 210)

⑧ closed (Operations of outer tray)
closed : Has closed
closing : Closing
opened : Has opened
opening : Opening
stop : Stopped halfway

⑨ CYCLES (No. of cycles) : 6 digits

【Aging Menu】

| Menu No. | Operations |
|---|---|
| 0 | Aging for checks before shipping<br>Plays discs 0 and 1 to 50 in players 1 and 2 for approx. 10 sec. each. The outer tray is regularly opened and closed.<br>No retries when operation errors occur.<br>One cycle for 0 to 50. (Initial 1 at start) |
| 1 | Aging for checks before shipping<br>(Operations are the same as Menu no. 0)<br>The no. of retries when errors occur is one for the player and zero for the mechanism. |
| 2 | Aging for checks before shipping<br>(Operations are the same as Menu no. 0)<br>The no. of retries when errors occur is one for both the player and the mechanism. |
| 3 | Aging for checks before shipping<br>(Operations are the same as Menu no. 0)<br>The no. of retries when errors occur is one to two for the player and four for the mechanism. (Same as no. of retries carried out normally.) |
| | |
| 7 | Plays discs 10 to 12 in players 1 and 2 for approx. 5 sec. each. The outer tray is regularly opened and closed.<br>The no. of retries when errors occur is the same as that normally carried out.<br>One cycle for 10 to 12. (Initial 1 at start) |
| 8 | To and fro operations horizontally at no. 20. If the player contains discs, plays sides A and B alternately for approx. 5 sec.<br>The no. of retries when errors occur is the same as that normally carried out.<br>The cycle no. is counted for each horizontal one way path. (Accumulation count) |
| 9 | Plays discs 1 to 50 in players 1 and 2 for approx. 45 sec. each. During this time, the carrier carries out to and fro operations vertically.<br>The no. of retries when errors occur is the same as that normally carried out.<br>One cycle for 0 to 50.<br>(Initial 0, accumulation count) |

Table. 9

**Note:**

- Using discs usually not sold, such as aluminum lined 20 cm LD and 30 cm single plates, for aging will cause errors.
- Aging cannot be carried out if two players have not been set.
- Retries will not be carried out for outer tray and communication errors.

## • TABLE OF KEYS AND CORRESPONDING CODES

| FUNCTION | HEX CODE |
|---|---|
| 0 | 00 |
| 1 | 01 |
| 2 | 02 |
| 3 | 03 |
| 4 | 04 |
| 5 | 05 |
| 6 | 06 |
| 7 | 07 |
| 8 | 08 |
| 9 | 09 |
| DIG/ANA | 0C |
| CX | 0E |
| TV/LDP | 0F |
| SCAN ▶▶ | 10 |
| SCAN ◀◀ | 11 |
| CHP/TIM | 13 |
| ■/⏏ | 16 |
| PLAY ▶ | 17 |
| PAUSE ▮▮ | 18 |
| A. MON | 1E |
| +10 | 1F |
| CHAP | 40 |
| FRM/TIM | 41 |
| SEARCH | 42 |
| DISP | 43 |
| REP. B | 44 |
| CLEAR | 45 |
| SPEED − | 46 |
| SPEED + | 47 |
| REP. A | 48 |
| STEREO | 4A |
| SIDE A | 4D |
| SIDE B | 4E |
| STLL STEP ◀\| | 50 |
| × 3 ▶ | 51 |
| CHAPTER SKIP ▶▶\| | 52 |
| CHAPTER SKIP \|◀◀ | 53 |
| STLL STEP \|▶ | 54 |
| P. RUN | 56 |
| ◀ × 3 | 59 |
| TEST | 5E |
| ESC | 5F |

Table. 10

## • VARIOUS OPERATION MODES OF PLAYER

### OPEN MODE 1

| Step | Process |
|---|---|
| 0 | Internal register clear, spindle stop set, focus off standby |
| 1 | Models with both sides<br>Side B / Side A / During "alpha turning"<br>Tilt up starts / Tilt down starts |
| 2 | Stands by for tilt up<br>Slider B outside shift starts |
| 3 | Stands by for spindle stop |
| 4 | Stands by for slider B outside shift |
| 5 | Clamp switching B→A starts |
| 6 | Stands by for clamp switching B→A |
| 7 | Tilt down starts |
| 8 | Stands by for tilt down |
| 9 | Shift to slider LD sensing position starts |
| A | Stands by for spindle stop |
| B | Stands by for shift to slider LD sensing position |
| C | Unload starts |
| D | Unloads until out SW is set |
| E | Sets 100 msec. timer |
| F | Waits for 100 msec. |
| | End |

Table. 11

### STANDBY MODE 2

| Step | Process |
|---|---|
| 0 | Internal register clear, spindle stop set, focus off standby |
| 1 | Models with both sides<br>Side B / Side A / During "alpha turning"<br>Tilt up starts / Tilt down starts |
| 2 | Stands by for tilt up<br>Slider B outside shift starts |
| 3 | Stands by for spindle stop |
| 4 | Stands by for slider B outside shift |
| 5 | Clamp switching B→A starts |
| 6 | Stands by for clamp switching B→A |
| 7 | Tilt down starts |
| 8 | Stands by for tilt down |
| 9 | Shift to slider LD sensing position starts |
| A | Stands by for spindle stop |
| B | Stands by for shift to slider LD sensing position |
| C | Tilt neutral starts |
| D | Stands by for tilt neutral |
| | End |

Table. 12

**STOP MODE 3**

| Step | Process |
|---|---|
| 0 | Internal register clear, spindle stop set, focus off standby |
| 1 | Models with both sides |
| | Side B / Side A / During "alpha turning" |
| | Tilt up starts / Tilt down starts |
| 2 | Stands by for tilt up<br>Slider B outside shift starts |
| 3 | Stands by for spindle stop |
| 4 | Stands by for slider B outside shift |
| 5 | Clamp switching B→A starts |
| 6 | Stands by for clamp switching B→A |
| 7 | Tilt down starts |
| 8 | Stands by for tilt down |
| 9 | Shift to slider LD sensing position starts |
| A | Stands by for spindle stop |
| B | Stands by for shift to slider LD sensing position |
| C | Tilt neutral starts |
| D | ↓ |
| E | Stands by for tilt neutral |
| | End |

Table. 13

**DISC SENSING MODE 4**

| Step | Process |
|---|---|
| 0 | Stands by for tilt neutral |
| | Models with both sides |
| | Side A / Side B |
| | Normal / CD direct mode |
| | LD sensing / CD sensing / LD Side B sensing |
| 1 | Shift to slider LD sensing position starts<br>Focus try counter clears |
| 2 | Stands by for shift to slider LD sensing position |
| 3 | Focus try |
| | Focus unlock / Focus lock |
| | LD presence fixed, ends |
| 4 | Focus off |
| 5 | Shift to slider CD sensing position starts |
| 6 | Stands by for shift to slider CD sensing position |
| 7 | Focus try |
| | Focus unlock / Focus lock |
| | CD presence fixed, ends |
| 8 | Focus off |
| 9 | Shift to slider LD sensing position starts<br>Focus try counter clears |
| A | Shift to slider LD sensing position starts |
| B | CD direct mode discrimination |
| | CD direct mode / Normal |
| C | Focus try |
| | Focus unlock / Focus lock |
| | Focus lock / LD presence fixed, ends |
| D | Focus off |
| E | Disc absence fixed, ends |
| F | Shift to slider B inside position starts |
| 10 | Stands by for shift to slider B inside position |
| 11 | Focus try |
| | Focus unlock / Focus lock |
| 12 | Focus off / Side B presence fixed, ends |
| 13 | Side B disk absence fixed |
| | End |

Table. 14

## SETUP MODE 5

| Step | Process |
|---|---|
| 0 | Tilt neutral standby, slider target position setting<br>CD / LD Side A / LD Side B<br>Shift to CD TOC position starts / Shift to LD TOC position starts / Shift to LD Side B inside position starts |
| 1 | Focus check (including disc overload error (LD + CD))<br>Focus lock (OK) / Focus unlock (NG)<br>Stands by for shift to slider target position / LD / CD<br>Focus error, ends / If unsuccessful after three tries, ends in focus error |
| 2 | Spindle setting<br>CD set / CDV set / LD set<br>60 sec. timer set, spindle RUN starts |
| 3 | Focus check<br>Focus lock (OK) / Focus unlock (NG)<br>Stands by for spindle lock while performing mis-clamp check / Time over Spindle error, ends / Clamp error, ends<br>60 sec. timer set |
| 4 | LD / CD, CDV<br>CAV/CLV discrimination<br>Not determined / Determined |
| 5 | Focus check<br>Focus lock (OK) / Focus unlock (NG)<br>Stands by for code reading / Timer over / Focus error, ends<br>Slider is moved slowly along the outer and inner circumference until the codes in the PGM area are read. Sets 60 sec. timer after they are read, and returns to step 4. / Code error, ends |
| 6 | End |

Table. 15

## TOC READ MODE 6

| Step | Process |
|---|---|
| 0 | Divided according to disc types<br>LD / CD, CDV |
| 1 | 1st address clear, sets 15 sec. timer |
| 2 | Shifts to read-in (and focus time check)<br>24 bits code has been read / Can not be read<br>Read-in / PGM area read-out<br>↓ / 32 tracks REV jump / Play |
| 3 | Shifts to PGM area (and focus time check)<br>24 bits code has been read / Can not be read<br>PGM area / Read-in<br>↓ / 16 tracks FWD jump / Play |
| 4 | Shifts to read-in (and focus time check)<br>24 bits code has been read / Can not be read<br>Read-in / PGM area<br>↓ / 4 tracks REV jump / Play |
| 5 | Plays to PGM area (and focus time check)<br>24 bits code has been read / Can not be read<br>PGM area / Read-in<br>Sets 0.5 sec. timer ↓ / Play |
| 6 | Records 1st address (CH, time) (and focus check)<br>After 0.5 sec., presence/absence of CH and sec. determined<br>Sets 0.5 sec. timer ↓ |
| 7 | TOC (sub code) presence/absence determined (and focus check)<br>TOC present ↓ / TOC absence disc fixed and ends if sub code not read for 0.5 sec. |
| 8 | Sets 15 sec. timer |
| 9 | Stands by for TOC reading / Time over / TOC reading ends<br>PGM area / Read-in sub code NG / TOC error set ends / End<br>↓ / Play |
| A | Sub code OK (+ focus check) NG<br>32 tracks REV jump / Play<br>↓ |
| B | Sub code OK (+ focus check) NG<br>32 tracks REV jump / Play<br>↓ |
| C | Sub code OK (+ focus check) NG<br>32 tracks REV jump / Play<br>↓ |
| D | Sub code OK (+ focus check) NG<br>32 tracks REV jump / Play<br>↓ |
| E | To step 9 |

Table. 16

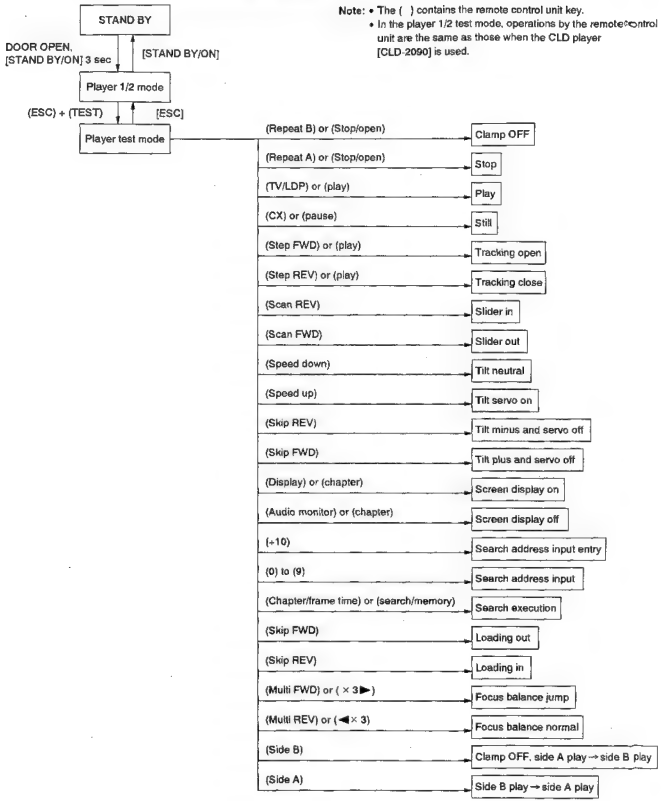
## SEARCH MODE 8

| Step | Process |
|---|---|
| 0 | Focus on / Focus off |
| | Sets 15 sec. timer / Recover error, ends |
| | Divided according to type of disc search target |
| | CDV / CD / LD |
| | Track search / (Waits for absolute time) |
| | A ↔ V / A ↔ V, V ↔ A |
| | ↓ |
| 1 | Focus try counter clears, spindle stop starts, slider shift starts |
| | To A → V CDV TOC position / To V → A CD TOC position |
| 2 | Stands by for slider shift |
| | Spindle stop standby → Disc overload (clamp) error occurs if does not stop even after 1.8 seconds, ends |
| | Focus lock (sets 15 sec. timer set) / Focus try |
| | A, CD spindle set / V, CDV spindle set / If unsuccessful after 4 tries, recover error occurs, ends |
| 3 | Stands by for spindle lock |
| | Stands by for sub code reading ↓ |
| 4 | Sets track count 10 times |
| 5 | Slider shifts while performing track count |
| 6 | Difference from target address above approximately 1 min. / Approaching within approximately 1 min. |
| | Slider shifts |
| 7 | Slider shifts until target address is crossed (H SCAN) |
| 8 | Slider shifts until target address is crossed (L SCAN) |
| | ↓ |
| 9 | 32 tracks jump until target address is crossed |
| A | 4 tracks jump until target address is crossed<br>Sets 5 sec. timer |
| B | 4 tracks jump until near target address / Timer check NG → Search error, ends |
| C | Play until target address reached |
| | Time out / Reached |
| | LD, CDV-V / CD, CDV-A / LD, CDV-V / CD, CDV-A |
| | Search error, ends / Spindle lock / Unlock / REV 1 jump |
| | Ends / LD / CDV-V |
| | To step B / REV jump |
| D | 4 tracks jump until near target address<br>Time check NG → search error, ends |
| E | Plays until target address reached |
| F | When new search target input during searching, returns to step 0 after spindle locks. |

Table. 17

## 9.4 PLAYER TEST MODE

### (PLAYER TEST MODE OPERATIONS OUTLINE DIAGRAM)




**Note:** • The ( ) contains the remote control unit key.
• In the player 1/2 test mode, operations by the remote control unit are the same as those when the CLD player [CLD-2090] is used.

## Controlling the Test Mode of the Player

● Setting the test mode of the player

In test mode 1/2 (player 1/2 mode), press [ESC] and [TEST] keys in order. The test mode of the player will be set.

**Note:** Be sure to load the test disc in the player beforehand.

The video/audio function automatically switches to the player to be tested.

(1) Clamp OFF (Open)

a. Press the [repeat B] key (44H) of the remote control unit.

b. Or, in the stop state, press the [stop/open ( ■ / ⏏ )] key of the remote control unit.

(2) Stop

a. Press the [repeat A] key (48H) of the remote control unit.

b. Or, in the play state, press the [stop/open ( ■ / ⏏ )] key of the remote control unit.

c. Or, in the clamp OFF state, press the [play ( ▶ )] key (17H) of the remote control unit.

(3) Play (spindle start up)

a. Press the [TV/LDP] key (0FH) of the remote control unit.

b. Or, in the stop state (clamp state), press the [play ( ▶ )] key of the remote control unit.

- Tracking will be started up in the open state.
- The tilt in the initial state is neutral.
- According to the position of the slider during start up, the disc type is discriminated.

(4) Still

a. Press the [CX] key (0EH) of the remote control unit in the play state.

b. Or in the play state, press the [pause ( ▮▮ )] key (18H) of the remote control unit. Each time it is pressed, play/still switches alternately.

(5) Tracking open

a. In the play state, press the [step FWD] key (54H) of the remote control unit.

b. Or in the play state, press the [play ( ▶ )] key (17H) of the remote control unit. Each time either key is pressed, open/close switches alternately.

(6) Tracking close

a. In the play state, press the [step REV] key (50H) of the remote control unit.

b. In the play state, press the [play ( ▶ )] key (17H) of the remote control unit. Each time either key is pressed, open/close switches alternately.

(7) Slider in

a. Press the [scan REV] key (11H) of the remote control unit.

(8) Slider out

a. Press the [scan FWD] key (10H) of the remote control unit.

(9) Tilt neutral

a. Press the [speed down] key (46H) of the remote control unit.

- The tilt in the initial state is neutral.

(10) Tilt servo on

a. Press the [speed up] key (47H) of the remote control unit.

(11) Tilt minus and servo off

a. Press the [skip REV] key (53H) of the remote control unit in states other than "clamp open".

(12) Tilt plus and servo off

a. Press the [skip FWD] key (52H) of the remote control unit in states other than "clamp open".

(13) Screen display on

a. Press the [display] key (43H) of the remote control unit

b. Or press the [chapter] key (40H) of the remote control unit. Each time it is pressed, the display turns on/off alternately.

- The screen display is on in the initial state.

(14) Screen display off

a. Press the [audio monitor] key (1EH) of the remote control unit.

b. Or press the [chapter] key (40H) of the remote control unit. Each time it is pressed, the display turns on/off alternately.

(15) Search address input entry

a. In the play state, press the [+10] key (1FH) of the remote control unit.

- The address searched previously is displayed as the initial state. When search is executed at this time, previous addresses can be searched.

(16) Search address input

a. Press the [0] to [9] keys of the remote control unit.

- When the number key is to be input for the first time, clear the input address before inputting.

(17) Search execution

a. Press the [chapter/frame time] key (13H) of the remote control unit.

b. Or press the [search/memory] key (42H) of the remote control unit.

(18) Loading out

a. In the open state, press the [skip FWD] key (53H) of the remote control unit.

(19) Loading in

a. In the open state, press the [skip REV] key (52H) of the remote control unit.

(20) Focus balance jump

a. During play, press the [Multi FWD] key (58H) ([ × 3 ▶ ] key of the LD remote control unit for service) of the remote control unit.

b. Or during play, press the [highlight/intro.] key (5AH) or the [frame/time] key (41H) of the remote control unit. Each time either key is pressed, jump/normal switches alternately.

(21) Focus balance normal

a. During play, press the [Multi REV] key (55H) ([◀ × 3] key for the service remote control unit) of the remote control unit.

b. Or during play, press the [highlight/intro.] key (5AH), the [frame/time] key (41H) of the remote control unit. Each time either key is pressed, jump/normal switches alternately.

(22) Clamp OFF, side A play → side B play

a. In clamp OFF or side A play state, press the [side B] key (4EH) of the remote control unit.

(23) Side B play → side A play

a. In the side B play state, press the [side A] key (4DH) of the remote control unit.

## 9.5 Mechanism Error Codes

| Error Code | Contents | Retry Operations | Possible Causes | To Recover |
|---|---|---|---|---|
| 02 | Incorrect counting of vertical addresses (Mis-count) | Positioning after vertical initialization in reverse direction | • Faulty vertical encoder input of changer controller<br>• Foreign particles in vertical address slit | • Turn off and then on the power or perform the automatic recovery of test 4<br>• Carry out the vertical operations of test 3 and check that the vertical addresses are being counted correctly. |
| 04 | Error in vertical operations (Vertical limit SW is on) | Positioning after vertical initialization in reverse direction | • Because of faulty elevating motor control, the motor could not stop and has hit against something<br>• Faulty limit SW input | • Turn off and then on the power or perform the automatic recovery of test 4<br>• Carry out the vertical operations of test 3 and check that the motor does not hit against anything |
| 07 | Time-over of vertical operations<br>• Time-over of the vertical operations of the changer controller<br>Time-out instead of overloading of the elevating motor<br>• Difference in vertical positions<br>Difference between the target position after completing operations and current position<br>• Time-out of the system controller in vertical operations<br>Time-out at the system controller without errors occurring in the changer controller | Positioning after vertical initialization in the reverse direction or in the direction near the vertical address | • Elevating motor does not operate<br>• Caught due to foreign particles, etc. in the vertical direction<br>• The carrier base is not tilting correctly<br>• The changer controller is not operating<br>(Related to power supply)<br>• Vertical time-out retry was repeated several times continuously and the elevating motor has over-heated (Elevating motor cooling standby mode) | • Turn off and then on the power or perform the automatic recovery of test 4<br>• Carry out the vertical operations of test 3 and check if operations are normal<br>• After more than 10 minutes, turn the power on<br>However, the automatic recovery of test 4 can be performed immediately |
| 08 | Overload of vertical motor<br>• Overload during vertical operations<br>• Noise was received during horizontal operations, and overload was detected | Positioning after vertical initialization in the reverse direction<br>Horizontal operations in reverse direction → vertical initialization → positioning → original horizontal operations | • Caught due to foreign particles, etc. in the vertical direction, and overload was detected<br>• Noise was received during horizontal operations and overload detected | • Turn off and then on the power or perform the automatic recovery of test 4<br>• Perform the vertical operations/horizontal operations of test 3, and check if operations are normal |
| 09 | Error in outer tray operations<br>• Outer stopped halfway<br>• Power on operations ended abnormally | Usually reversal operations are performed four times<br>Reversal operations are not performed in aging operations<br>Not performed<br>From here, only the power key is accepted | • Caught in the outer<br>• Mechanism load of the outer is excessive<br>• Faulty outer motor operations<br>• Faulty outer plunger operations<br>• The standard tray is not in the outer even though the unit was started up normally<br>• The standard tray is in the outer even though the unit was started up after the disc had been replaced. | • Operate open/close key<br>• Turn power off and then on |

| Error Code | Contents | Retry Operations | Possible Causes | To Recover |
|---|---|---|---|---|
| 12 | Abnormal EEPROM | Not performed | • Damaged by static electricity, etc.<br>• Affected by noises, etc. while reading or writing | • Replace EEPROM<br>Before replacing...<br>(1) Initialize mechanism with the automatic recovery of test 4<br>(2) Fill in the player's service record label with the songs played and play time of the player<br>After replacing<br>(1) Perform the all-clear of the EEPROM<br>(2) As all disc information has been cleared, replace discs (1 to 50) and reset disc presence/absence |
| 27 | Horizontal operation time-over<br>• Time-over of the horizontal operations of the changer controller<br>• Difference in the status of the carrier base when operations were completed<br>• Time-out of the system controller of horizontal operations<br>Time-out at the system controller without errors occurring in the changer controller | Horizontal operations in the reverse direction → vertical initial → positioning → original horizontal operations | • The vertical positions of the carrier base, player, outer tray and rack are displaced<br>• Mechanism load in the horizontal direction is excessive<br>• Loading motor is not operating<br>• Changer controller is not operating<br>(related to power supply)<br>• Trying to place tray where there is already a tray<br>• Claws holding the tray in place have broken off | • Turn off and then on the power or perform the automatic recovery of test 4<br>• Perform the horizontal operations of test 3 and check if operations are normal |
| 28 | Time-over in the carrier base lock pin operations | Positioning after vertical initialization in the reverse direction or direction near the vertical address | • When the carrier base is elevating without carrying any tray, the lock pin does not come off or does not go into the pin hole<br>• The loading motor is not operating<br>• The changer controller is not operating<br>(related to power supply) | • Turn off and then on the power or perform the automatic recovery of test 4<br>• Perform the vertical operations of test 3 and check if operations are normal |
| 41 | Error in the communication with the changer controller | • After the changer controller is reset from L to H, stands by for communication recovery for 1 second. This is performed four times. If the communication does not recover, it is taken as communication error.<br>• If it recovers, mechanism retry is performed.<br>If vertical operations are performed when a communication error has been generated, positioning is carried out after vertical initialization in the reverse direction or direction near the vertical address<br>If horizontal operations are performed when a communication error has been generated, horizontal operations in the reverse direction are performed, positioning is carried out after vertical initialization, and then the original horizontal operations are performed | • Faulty communication line connection<br>• Communication line is fixed to H, L<br>• Noise on the communication line<br>• The changer controller is not operating<br>(related to power supply) | • Turn off and then on the power or perform the automatic recovery of test 4 |

| Error Code | Contents | Retry Operations | Possible Causes | To Recover |
|---|---|---|---|---|
| 42<br>43 | Error in the communication with the player mechanism controller<br>42: Player 1<br>43: Player 2 | • The servo mechanism controller is reset from L → H. After this, communication is checked if it has been successful or not for approximately 3 continuous seconds.<br>• Stop after recovery → clamp off | • Faulty communication line connection<br>• Communication line is fixed to H, L<br>• Noise on the communication line<br>• The servo mechanism controller is not operating (related to power supply) | • Turn off and then on the power or perform the automatic recovery of test 4 |
| 44 | Error in changer controller operations<br>• "Operations not possible" has been received in respect to the command issued from the changer controller<br>• The system controller has detected mechanism overrun | • Not performed<br>• The same retry operations as error 41 are performed | • The horizontal operations status was generated during vertical operations were started<br>• The vertical operations status was generated when horizontal operations were started<br>• Difference between the operations of the changer controller and that of the system controller | • Turn off and then on the power or perform the automatic recovery of test 4 |
| 45 | Faulty disc sensor | Not performed | • Faulty connection<br>• Faulty element | • Turn off and then on the power or perform the automatic recovery of test 4 |
| 46<br>47 | Aging of test mode B<br>The player cannot play during operations<br>46: Player 1<br>47: Player 2 | • Retry operations are not performed at B-0<br>Retry operations are performed once at B-1, 2<br>Normal retry operations are performed at B-3<br>• Mis-clamp generation:<br>Start-up operations are performed again after clamp off<br>• The spindle could not be locked at start up<br>"Unfocused" at start-up<br>Time-over of search operations<br>Time-over of TOC read operations<br>Time-over when disc was started up<br>Start-up operations again after stop<br>• No search chapter:<br>Read-out when search was attempted<br>Determined as "no disc" because could not focus<br>No retry | • Although a disc judged as containing discs was played, the player was stopped or clamped off, and the play could not be carried out<br>• Player mechanism error or player communication error has occurred<br>• Disc is scratched or dirty | • Perform the automatic recovery of test 4 |

Table. 18

## 9.6 LC–V200/100 CLD PLAYER ERROR CODES

| Error Code | | Item | Description |
|---|---|---|---|
| PL1 | PL2 | | |
| 96 | D6 | Meaning<br>Retry Operation<br><br>Generation<br>Possible Causes | Time-over of clamp release<br>If player operations do not end within approximately 10 seconds after clamp release operations were started, the clamp release operations are started again after re-clamping once<br>If clamp release operations do not end even after retry operations have been repeated twice<br>(1) The loading system mechanism has malfunctioned or is caught<br>(2) Malfunction of loading/tilt motor, or motor drive circuit<br>(3) Disconnection/faulty connection in the route between [TILT DRV terminal] of PD0162A1, motor driver, and loading/tilt motor<br>(4) Malfunction of SW1, SW2, or SW3<br>(5) Disconnection/faulty connection in the route between each terminal [SW1], [SW2], [SW3] of PD0162A1 and SW1, SW2, SW3 |
| 97 | D7 | Meaning<br>Retry Operation<br><br>Generation<br>Possible Causes | Time-over of clamp operation<br>If player operations do not end within approximately 10 seconds after clamp operations were started, the clamp operations are started again after re-clamping once<br>If clamp release operations do not end even after retry operations have been repeated twice<br>Same as "Time-over of clamp release" |
| A7 | E7 | Meaning<br>Retry Operation<br><br>Generation<br>Possible Causes | Time-over of side A/B switching operations<br>If player operations do not end within 10 seconds after side A/B switching operations were started, side A/B switching operations are started again<br>If side A/B switching operations do not end even after retry operations have been repeated twice<br>(1) The alpha turn mechanism has malfunctioned or is caught<br>(2) Malfunction of slider motor, or motor drive circuit<br>(3) Disconnection/faulty connection in the route between [SLD DRV terminal] of PD0162A1, motor driver and slider motor<br>(4) Malfunction of PARK1, PARK2, or PARK3 switch<br>(5) Disconnection/faulty connection in the route between [PARK1] terminal of PD0162A1 and PARK1, PARK2, PARK3 switches |
| A8 | E8 | Meaning<br>Retry Operation<br><br>Generation<br>Possible Causes | Time-over of side A slider operations<br>If player operations do not end within 10 seconds after slider transfer operations were started when side A of the disc is started up, slider transfer operations are started again after stopping once<br>If clamp release operations do not end even after retry operations have been repeated twice<br>Same as "Time-out of side A/B switching operations" |
| A9 | E9 | Meaning<br>Retry Operation<br><br>Generation<br>Possible Causes | Time-over of side B slider operations<br>If player operations do not end within 10 seconds after slider transfer operations were started when side B of the disc is started up, slider transfer operations are started again after stopping once<br>If clamp release operations do not end even after retry operations have been repeated twice<br>Same as "Time-out of side A/B switching operations" |
| B3 | E3 | Meaning<br>Retry Operation<br><br><br>Generation<br>Possible Causes | Time-over of the clamp release of the player at power supply on<br>If player operations do not end within 10 seconds after clamp release operations were started during mechanism initialization operations at power supply on, clamp release operations are started again after re-clamping once<br>If clamp release operations do not end even after retry operations have been repeated twice<br>Same as "Time-over of clamp release" |
| 42 | 43 | Meaning<br>Retry Operation<br>Generation<br><br><br>Possible Causes | Communication error with player 1/2<br>Resets the player (Approx. 0.4 seconds)<br>(1) If there is no communication request from the player for approximately 3 continuous seconds<br>(2) There is communication request from the player, but communication was unsuccessful for approximately 3 continuous seconds due to noise, etc.<br>(1) Disconnection/faulty connection in the route between [SHAKE], [SI1], [SO1], and [SCK1] terminals of PD0162A1 and communication terminal of system controller<br>(2) Noise on the above communication line<br>(3) PD0162A1 is not operating (Malfunction/power not supplied/clock not supplied, etc.) |

Table. 19

## • LC-V200/100 CLD PLAYER Information Codes

| Information Code | | | | Item | Description |
|---|---|---|---|---|---|
| PL1 | | PL2 | | | |
| Side A | Side B | Side A | Side B | | |
| 80 | 88 | C0 | C8 | Meaning<br>Retry Operation<br>Generation<br><br>Possible Causes | TRANSIT SW Detection<br>None<br>The "TRANSIT SW detection" code has been transmitted from the player mechanism microprocessor PD0162A1 at times other than power on initialization<br>(1) Loading system mechanism is no longer in the "clamp off" condition when it should be.<br>(2) SW1, SW2, and SW3 faults.<br>(3) The input voltage level of the "PARK1" pin of PD0162A1 is due to some reason in a period (1.05 to 2.43V) above 300 msec.<br>(4) Fault of the SWs for detecting the slider position-PARK1, PARK2, and PARK3.<br>(5) Disconnection/faulty connection of the route between the PARK1 pin of PD0162A1 and each SW-PARK1, PARK2, and PARK3. |
| 81 | 89 | C1 | C9 | Meaning<br>Retry Operation<br>Generation<br><br>Possible Causes | Could not focus and determined as no disc<br>None<br>When could not focus in operations detecting the presence/absence of a disc when it is started up<br>(1) Attempted to start up tray number with no disc<br>(2) Disc so dirty or scratched that could not focus<br>(3) Disc so displaced or tilted due to mis-clamp that could not focus<br>(4) Malfunction/faulty connection of focus system (pickup, circuit) |
| 83 | 8B | C3 | CB | Meaning<br>Retry Operation<br>Generation<br>Possible Causes | Read-out occurred when search was attempted<br>None<br>When the read-out area is entered while searching<br>(1) Chapter not recorded on a disc without TOC has been specified<br>(2) While searching, the phillips code recorded on the disc could not be read (scratches, dirt) and the search target was passed |
| 84 | 8C | C4 | CC | Meaning<br>Retry Operation<br>Generation<br>Possible Causes | Chapter to be searched does not exist<br>None<br>When a chapter not recorded on a disc has been specified<br>(1) A chapter not recorded on a disc with TOC (including CD, CDV) has been specified<br>(2) Songs on side B of the CD, CDV, or 8 inch LD have been specified<br>(3) A chapter not recorded on the disc has been specified, without returning the disc once (soon) from the same side (final song known) of the disc which became the above "Read-out occurred when search was attempted". |
| 85 | 8D | C5 | CD | Meaning<br>Retry Operation<br>Generation<br><br>Possible Causes | The spindle could not be locked at start up<br>After the player is stopped once (with clamp on), startup operations are re-started<br>When spindle cannot be locked even when retry operations have been carried out (once)<br>(1) The phillips code and sub code recorded on the disc cannot be read (causes related to the disc such as scratches, dirt, etc, can be considered)<br>(2) The built-in phillips decoder circuit of PD0162A1 or PD0162A1 has broken down and the phillips code cannot be read<br>(3) Malfunction/faulty connections of spindle system (motor driver, servo circuit) |
| 86 | | C6 | | Meaning<br>Retry Operation<br>Generation<br><br>Possible Causes | A side different from the commander has been played<br>None (the chapter specified will be played)<br>In respect to the side specified, the phillips code information of the disc side started up is on the opposite side<br>(1) The disc has been set inside out<br>(2) The phillips code information recorded on the disc started up is incorrect<br>(3) The built-in phillips decoder circuit of PD0162A1 or PD0162A1 has broken down<br>(4) In respect to the CD, CDV, 8 inch LD, side B has been specified in test mode B (aging) (At this time, side A is played.) |

| Information Code | | | | Item | Description |
|---|---|---|---|---|---|
| PL1 | | PL2 | | | |
| Side A | Side B | Side A | Side B | | |
| 87 | 8F | C7 | CF | Meaning<br>Retry Operation<br>Generation<br><br>Possible Causes | Time-over of disc startup operations<br>After stopping the player once (with clamp on), start-up operations are started again<br>When the disc is not played even after errors have not been detected for approximately 1 minute during disc start-up in the clamp off state<br>The focus system, spindle system, phillips decoder system, EFM decoder system, loading/tilt drive system (SW, mechanism, circuit), slider drive system (SW, mechanism, circuit) have been over-used and operations cannot end normally |
| 90 | 98 | D0 | D8 | Meaning<br>Retry Operation<br>Generation<br><br>Possible Causes | Mis-clamp<br>After releasing the clamp of the player once, start-up operations are started again<br>When the same mis-clamp has been detected even after retry operations have been repeated twice<br>(1) Error in clamp mechanism (loose, faulty, etc.)<br>(2) Noise in the [TZC] terminal of PD0162A1 or the connection of this line is faulty |
| 92 | 9A | D2 | DA | Meaning<br>Retry Operation<br>Generation<br>Possible Causes | "Unfocused" at start up<br>After stopping the player once (with clamp on), start-up operations are started again<br>Focus cannot be locked even after retry operations (once) have been performed<br>(1) Disc is so dirty or scratched that could not focus<br>(2) Due to incomplete clamp, the disc has tilted, and "unfocused" at start up<br>(3) Malfunction/faulty disconnection of focus system (pickup, circuit) |
| B0 | B8 | F0 | F8 | Meaning<br>Retry Operation<br>Generation<br><br>Possible Causes | Time-over of search operations<br>After stopping the player once (with clamp on), search operations are re-started<br>When search operations do not end even after retry operations (once) have been performed.<br>(1) Due to causes related to the disc such as scratches, dirt, malfunction of PD0162A1 and CX2500AQ, faulty connection of [DATA] terminal of PD0162A1, or noise, the phillips code or sub code recorded on the disc cannot be read and the search target was not reached<br>(2) The phillips code could not be properly read because of noise on the [DATA] terminal of PD0162A1 or faulty connection of the line<br>(3) CXD2500AQ is faulty and the sub codes cannot be read |
| B5 | BD | F5 | FD | Meaning<br>Retry Operation<br><br>Generation<br><br>Possible Causes | Play cannot be continued<br>After stopping the player once (with clamp on), search operations are started again to the point determined as where play cannot be continued<br>When determining that play cannot be continued again after performing retry operations (once)<br>Errors in the focus system, spindle system, phillips decoder system, or EFM decoder system have occurred (sometimes the disc may be the cause) |
| B6 | BE | F6 | FE | Meaning<br>Retry Operation<br><br>Generation<br><br>Possible Causes | Time-over of TOC read operations<br>After stopping the player once (with clamp on), TOC read operations are started again<br>When TOC read operations do not end even after retry operations have been performed (once)<br>(1) The sub codes recorded on the disc cannot be read (causes related to the disc such as scratches, dirt, etc. can be considered)<br>(2) "Unfocused" after TOC read operations were started |

Table. 20

## 9.7 Initialization of Changer Mechanism

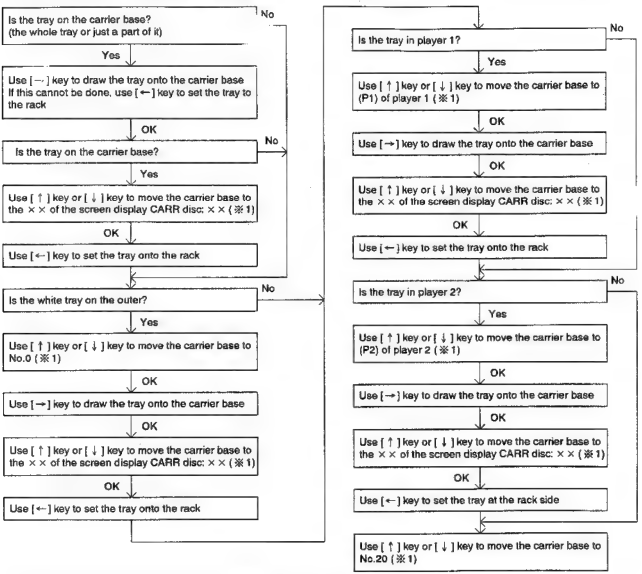
What is initialization of the changer mechanism
- No trays in players 1 and 2
- Standard tray (black) in the outer
- No tray in the carrier base and locked at "home" position (No.20)

To initialize the changer mechanism, carry out automatic recovery by using the [ → ] key of test mode 4. Errors will be cleared and the mechanism will automatically be initialized. Normally, it is initialized by this mode.

If the changer mechanism cannot be initialized by automatic recovery, mechanical or electrical causes can be suspected. Correct the problem and carry out the automatic recovery again.

### [Initialization of the changer mechanism by manual operations of test mode 3]

When initializing the changer mechanism using manual operations of test mode 3 instead of automatic recovery, perform the following.
Observe the OSD display at this time. Basically, automatic recovery operations are performed manually.
To clear error displays after mechanism initialization has been completed properly, carry out the automatic recovery of test mode 4.




※1: When the position of the carrier base is not fixed, the carrier base may perform vertical initial operations (moves to player 1 or 2 at low speed).
In this case, it will move to the target position after vertical initial operations have completed.

## 9.8 SYSB UNIT TEST MODE SPECIFICATIONS

### 1. Preparations/Connections

The following preparations are necessary to operate the TEST mode.

| Name | Connected to |
|---|---|
| Power supply +10V | CN12 ④ |
| +5V | ① |
| GND | ② |
| For STEP transmission SW | CN54 ① |
| GND | ② |
| For TEST | IC109 ⑱ |

* In the TEST mode, do not connect other units as almost all ports will be switched to the output port.

### 2. Checking STEP

**[STEP-1 Entering TEST mode]**

- The TEST terminal for checking the unit is connected to UNSWSV, and +10V and +5V are started up together.

TEST terminal

IC109 ⑱ HD6415108F10 ← Check (H) only immediately after the power supply

10K

**[STEP-2 Checking the RAM]**

- The writing of the external RAM is verified.
  Address E002 to fe50
  Data 55, aa
- If satisfactory, execute STEP-3.

**[STEPS-3, 4, 5, 6, 7 Checking terminals]**

- When the door SW is pressed, the step mode moves onto STEPS 4, 5, 6, 7, and 8 in order.

| | 3 4 5 6 7 | | 3 4 5 6 7 |
|---|---|---|---|
| CN53 | | CN35/36 | |
| ① XMCRST | ○ ○ L L L | ① UNSW+5V | |
| ② MCSO | ● ● L L L | ② KEYINB | |
| ③ MCSI | H H H ○ H | ③ KEYINA | |
| ④ MCSCK | L H H ● H | ④ SW5V | |
| ⑤ MCCS | ● ● L L L | ⑤ GND | |
| CN25 | | ⑥ DSPDATA | ○ ○ L L L |
| ② OSDSCK | H H H H ● | ⑦ EXPSCK | ● ○ L L L |
| ③ XOSDRST | ● ● L L L | ⑧ DSPCS2 | H H H H H |
| ④ XOSDCS | ○ ○ L L L | ⑨ DSPCS1 | H H L L L |
| ⑤ OSDSO | ● ● L L L | ⑩ POWERSW | ○ L L L L |
| CN33 | | | |
| ① SHAKE1 | ● L ○ ○ ○ | (08) | ○ |
| ② LDPSO | ● ● L L L | (09) | ● |
| ③ LDPSI | H L ○ H H | (10) TEST | (H H H H H) |
| ④ LDPSCK | H L ● H H | (55) | ● |
| ⑤ XP1RST | ○ ○ L L L | | |
| CN34 | | (60) | ○ |
| ① SHAKE2 | ○ L ● ● ● | (61) | ● |
| ② LDPSO | ● ● L L L | (62) | ○ |
| ③ LDPSI | H L ○ H H | (63) | ● |
| ④ LDPSCK | H L ● H H | | |
| ⑤ XP2RST | ● ● L L L | (65) | ○ |
| CN32 | | (66) | ● |
| ① TXD | ● ● L L L | (67) | ○ |
| ② RXD | ○ ○ L L L | (68) | ● |
| ③ XPOW | ○ ○ H H H | (69) | ○ |
| ④ XPLAY | ○ ○ L L L | (70) | ● |
| ⑤ THROUGH | ● ● H H H | | |
| CN12 | | (76) | ○ |
| ③ XPCONT | ○ ○ H H H | (77) | ● |
| CN24 | | | |
| ② EXP1DATA | ● ● L L L | | |
| ③ EXPSCK | ● ○ L L L | | |
| ④ NTSC/PAL | ● ● L L L | | |
| REMCON | ○ ○ L L L | | |

○ mark

● mark

← 0.3s →← 0.3s →

**[STEP-8 Checking/initializing the EEPROM]**

- The writing of the EEPROM is verified, and the initial data is written.
- If satisfactory, LED is displayed. (012345 light up, point, STANDBY and ERROR blink)
- When S301 is pressed, the test mode moves onto STEP-9.

**[STEP-9 Checking keys/displays]**

- When the door SW is pressed, the test mode moves onto STEP-10.
- The following are displayed when S301 to S107 are pressed. (Multiple pressing causes errors.)

| | D301 | D105 | D104 | D303 | D302 |
|---|---|---|---|---|---|
| Nothing pressed | – | – | – | – | – | | |
| S301 | 1 | 2 | 3 | 4 | 5 | 6 | | |
| S302 | 2 | 3 | 4 | 5 | 6 | 7 | | |
| S303 | 3 | 4 | 5 | 6 | 7 | 8 | | |
| S304 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| S305 | 5 | 6 | 7 | 8 | 9 | 0 | | |
| S306 | 6 | 7 | 8 | 9 | 0 | 1 | | |
| S307 | 7 | 8 | 9 | 0 | 1 | 2 | | |
| S308 | 8 | 9 | 0 | 1 | 2 | 3 | | |
| S309 | 9 | 0 | 1 | 2 | 3 | 4 | | |
| S310 | 0 | 1 | 2 | 3 | 4 | 5 | | |
| S311 | 1 | 2 | 3 | 4 | 5 | 6 | | |
| S312 | 2 | 3 | 4 | 5 | 6 | 7 | | |
| S101 | 8. | | | | | | • | • |
| S102 | 8. | 8. | | | | | • | • |
| S103 | 8. | 8. | | | | | • | • |
| S104 | 8. | 8. | 8. | 8. | | | • | • |
| S105 | 8. | 8. | 8. | 8. | 8. | | • | • |
| S106 | 8. | 8. | 8. | 8. | 8. | 8. | • | • |

**[STEP-10 End Display]**

- The segments of points will blink alternately (approx. 500 msec.)

**[When errors occur, error codes]**

- Errors detected at each step are displayed blinking at D304 and the test mode is stopped.
- Some cannot be displayed due to hardware restrictions.

50: External RAM verify error
51:
52:
53:
54:
55: EEPROM : BUSY error
56: : ECC error
57: : Verify error
58: : Cannot initialize and write
59: : Initialization data verify error
60: SW of KEYA is pressed
61: SW of KEYB is pressed
62: SW of KEYC is pressed
63: S312 is pressed
64: Door SW is pressed
65:
66:
67:
68:

# 10. IC INFORMATION

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

## 10.1 HD6415108F10 (IC109)
### SYSTEM MICROPROCESSOR

**● Pin Function Table**

| Pin No. | Name | Function | Pin No. | Name | Function |
|---|---|---|---|---|---|
| 1 | XRES | Reset input | 31 | A10 | Address output |
| 2 | NMI | GND | 32 | A11 | Address output |
| 3 | VSS | GND | 33 | A12 | Address output |
| 4 | XMCRST | Reset output of changer mechanism controller | 34 | A13 | Address output |
| 5 | XMCCS | Communication chip select output of changer mechanism controller | 35 | A14 | Address output |
| 6 | XCGCS | Communication chip select output of OSD IC | 36 | A15 | Address output |
| 7 | XCGRST | Reset output of OSD IC | 37 | VSS | GND |
| 8 | – | – | 38 | A16 | Address output |
| 9 | – | – | 39 | A17 | – |
| 10 | – | (Pin for checker) pull down | 40 | A18 | – |
| 11 | EEPCS | Communication chip select output of EEPROM | 41 | A19 | – |
| 12 | D0 | Data input/output | 42 | A20 | – |
| 13 | D1 | Data input/output | 43 | A21 | – |
| 14 | D2 | Data input/output | 44 | A22 | – |
| 15 | D3 | Data input/output | 45 | A23 | – |
| 16 | D4 | Data input/output | 46 | VSS | GND |
| 17 | D5 | Data input/output | 47 | DSPSELA | PD0012A select A output |
| 18 | D6 | Data input/output | 48 | DSPSELB | PD0012A select B output |
| 19 | D7 | Data input/output | 49 | DSPSELC | PD0012A select C output |
| 20 | VSS | GND | 50 | EXPSCK | Clock output of communication with AV expansion IC |
| 21 | A0 | Address output | 51 | DSPDATA | Data output of communication with PD0012A |
| 22 | A1 | Address output | 52 | EXPDATA1 | Data 1 output of communication with AV expansion IC |
| 23 | A2 | Address output | 53 | EXPDATA2 | Data 2 output of communication with AV expansion IC |
| 24 | A3 | Address output | 54 | – | – |
| 25 | A4 | Address output | 55 | VCC | Power supply |
| 26 | A5 | Address output | 56 | THRU | AV signal output through switching |
| 27 | A6 | Address output | 57 | XPWRON | Power control |
| 28 | A7 | Address output | 58 | XPLAY | Play discrimination signal to commander |
| 29 | A8 | Address output | 59 | NTSC/PAL | NTSC/PAL switching |
| 30 | A9 | Address output | 60 | XREQ | Not used |

| Pin No. | Name | Function | Pin No. | Name | Function |
|---|---|---|---|---|---|
| 61 | XRST0 | Not used | 87 | AVCC | Power supply |
| 62 | XR/W | Not used | 88 | VCC | Power supply |
| 63 | MUTE | Not used | 89 | XIRQ0 | Test mode remote control unit input |
| 64 | VSS | GND | 90 | SHAKE1 | Player 1 communication shake |
| 65 | DATA0 | Not used | 91 | SHAKE2 | Player 2 communication shake |
| 66 | DATA1 | Not used | 92 | SCK | Player communication clock |
| 67 | DATA2 | Not used | 93 | RXD | Commander communication (RS422) reception |
| 68 | DATA3 | Not used | 94 | TXD | Commander communication (RS422) transmission |
| 69 | – | – | 95 | Si | communication data input |
| 70 | XEXIST | Not used | 96 | SO | communication data output |
| 71 | SCISELA | Communication select A | 97 | VSS | GND |
| 72 | SCISELB | Communication select B | 98 | EXTAL | Clock input |
| 73 | PWRSW | Standby/On switch input | 99 | XTAL | Clock input |
| 74 | DOOR | Door switch input | 100 | VSS | GND |
| 75 | XPWRC | Power on input | 101 | Φ | – |
| 76 | XP1CDET | Not used | 102 | E | – |
| 77 | XP2CDET | Not used | 103 | XAS | – |
| 78 | XPRST2 | PLayer 2 reset output | 104 | XRD | External memory reading control output |
| 79 | XPRST1 | PLayer 1 reset output | 105 | XHWR | External memory writing conirol output |
| 80 | – | – | 106 | XLWR | External memory writing control output |
| 81 | VSS | GND | 107 | XFRSH | – |
| 82 | AVSS | GND | 108 | VCC | Power supply |
| 83 | KEYINA | Key input A | 109 | MD0 | Mode setting |
| 84 | KEYINB | Key input B | 110 | MD1 | Mode setting |
| 85 | KEYINC | Key input C | 111 | MD2 | Mode setting |
| 86 | DCIN | DC power supply input | 112 | STBY | Power supply connection |

*AV: AUDIO, VIDEO

The system microprocessor (HD6415108F10) accesses the external RAM and ROM and mainly performs the following operations at a period of approximately 40 msec. when the power is turned on.

| Operation | Details |
|---|---|
| Key inputs | Analyzes key inputs (analog data) |
| Remote control unit inputs | Analyzes wired remote control unit key inputs for the player test mode |
| Communication with commander | Transmits/receives commands/status (RS422) in asynchronous format |
| Changer mechanism control | Communicates with the mechanism microprocessor PD4360 and performs the communication which controls the changer mechanism at a period of approximately 40 msec. |
| EEPROM read/write | Writes/reads the disc presence/absence information, play information, mechanism condition, error, etc. in the EEPROM |
| On screen displays (OSD) | Transmits the screen display data to the OSD – IC<br>(1 line/40 msec., the real time data during play is on – time) |
| Player control | Controls the two players<br>Communication is carried out according to the following period for each player<br>During Stop : Every 24 msec.<br>During CD play : Every 13.3 msec. (sync)<br>During LD, CDV (V) play : Every 16.5 msec. (sync) for NTSC<br>: Every 20 msec. (sync) for PAL<br>During SCAN : Every sync reading |
| Audio, video input/output control | Switches the input/output of audio and video |
| LED displays | Outputs indicator, 7 segment LED displays |

## ● COMMUNICATIONS AROUND THE SYSTEM MICROPROCESSOR

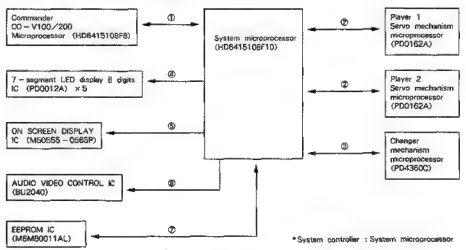



Fig 1

① Reservation and playback, etc. commands are transmitted and received from the commander, and status from the system controller.

② Player playback and stop commands are transmitted and received from the system controller, and status and disc information from the player.

③ Disc carrier, outer tray open/close commands are transmitted and received from the system controller, and status (vertical address, etc.) from the changer mechanism microprocessor.

④ The 7-segment LED display data is transmitted from the system controller.

⑤ The display data is transmitted from the system controller to the onscreen (screen display) IC.

⑥ The data is transmitted from the system controller to the expansion IC (BU2040) to switch the audio and video signals.

⑦ To memorize information during operations and the playback data of the player, the system controller transmits data to and receives data from the EEPROM IC (nonvolatile memory).

• Example of communication waveform
(All signals are 0 to 5V, 5V/div)

① System controller ⟷ Commander

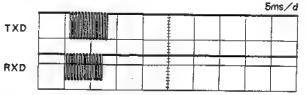



Fig 2

The TXD signal is behind the RXD by approximately 1 msec.
The communication byte number differs according to the communication contents.

② System Microprocessor ⟷ Player Servo Mechanism Microprocessor

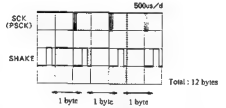



Fig 3

The communication byte number is 12 bytes.

③ System Microprocessor ⟷ Changer Mechanism Microprocessor

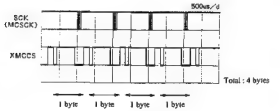



Fig 4

The communication byte number is 4 bytes.

⑤ System Microprocessor ⟷ OSDIC

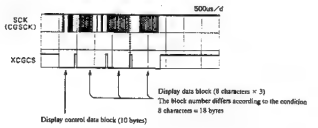



Fig 5

④, ⑥ System Microprocessor → BU2040
→ PD0012A

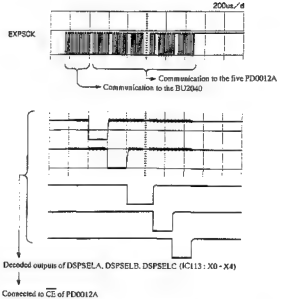



Fig 6

⑦ System Microprocessor ⟷ EEPROM IC (M6M80011AL)
Data writing Data reading


Fig 7

EEPROM data reading when outlet is on (64 words)
Outlet on

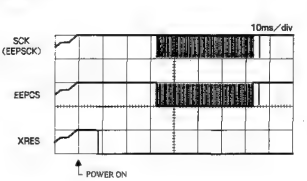
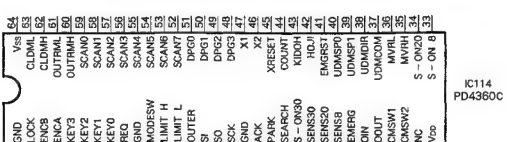



Fig 8

## 10.2 PD4360C (IC114)
### CHANGER MECHANISM MICROPROCESSOR

### ● Pin Connection Diagram




### ● Pin Function Table

| Pin No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 1 | – | I | GND connection |
| 2 | LOCK | I | Outer tray LOCK SW input |
| 3 | ENCB | I | Elevation count encoder sensor B input |
| 4 | ENCA | I | Elevation count encoder sensor A input |
| 5 | KEY3 | I | For checks during manufacture |
| 6 | KEY2 | I | For checks |
| 7 | KEY1 | I | For checks |
| 8 | KEY0 | I | For checks |
| 9 | REQ | I | Communication request input from system controller |
| 10 | – | I | GND connection |
| 11 | MODESW | I | Manual mode discrimination input for checks |
| 12 | LIMIT H | I | Elevation upper limit SW input (TOP) |
| 13 | LIMIT L | I | Elevation lower limit SW input (BOTTOM) |
| 14 | OUTER | I | Elevation count check sensor input |
| 15 | SI | I | System controller communication serial data input |
| 16 | SO | O | System controller communication serial data output |
| 17 | SCK | I | System controller communication serial clock input |
| 18 | – | I | GND connection |
| 19 | ACK | O | Communication ACK output to system controller |
| 20 | PARK | O | Mode display indicator (park) |
| 21 | SEARCH | O | Mode display indicator (search) |
| 22 | S – ON30 | O | Disc sensor emitting output (30 cm) |
| 23 | SENS30 | I | Disc sensor sensing input (30 cm) |
| 24 | SENS20 | I | Disc sensor sensing input (20 cm) |
| 25 | SENS8 | I | Disc sensor sensing input (8 cm) |

| Pin No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 26 | EMERG | I | Elevation motor over current detection input |
| 27 | OIN | I | Outer tray IN SW input |
| 28 | OOUT | I | Outer tray OUT SW input |
| 29 | CMSW1 | I | Carrier base SW1 input (elevation possible) |
| 30 | CMSW2 | I | Carrier base SW2 input (tray exists) |
| 31 | N.C. | – | – |
| 32 | VDD | – | Power supply +5V |
| 33 | S – ON8 | O | Disc sensor emitting output (8 cm) |
| 34 | S – ON20 | O | Disc sensor emitting output (20 cm) |
| 35 | MVR H | O | Main volume H output |
| 36 | MVR L | O | Main volume L output |
| 37 | UDMCOM | O | Elevation motor ON/OFF output |
| 38 | UDMDIR | O | Elevation motor up/down direction output (UP/DOWN) |
| 39 | UDMSP1 | O | Elevation motor speed 1 output |
| 40 | UDMSP0 | O | Elevation motor speed 0 output |
| 41 | EMGRST | O | Elevation motor over current circuit reset output |
| 42 | HOJI | O | Outer tray lock release mechanism hold output |
| 43 | KIDOH | O | Outer tray lock release mechanism start up output |
| 44 | COUNT | O | Mechanism check/main loop output |
| 45 | XRESET | I | Microprocessor reset input from system controller |
| 46 | X2 | – | Microprocessor clock input<br>4.194304 MHz |
| 47 | X1 | | |
| 48 | DPG3 | O | For checks during manufacture |
| 49 | DPG2 | O | For checks |
| 50 | DPG1 | O | For checks |
| 51 | DPG0 | O | For checks |
| 52 | SCAN7 | O | For checks |
| 53 | SCAN6 | O | For checks |
| 54 | SCAN5 | O | For checks |
| 55 | SCAN4 | O | For checks |
| 56 | SCAN3 | O | For checks |
| 57 | SCAN2 | O | For checks |
| 58 | SCAN1 | O | For checks |
| 59 | SCAN0 | O | For checks |
| 60 | OUTRMH | O | Outer tray motor H output |
| 61 | OUTRML | O | Outer tray motor L output |
| 62 | CLDMH | O | Carrier base tray closing motor H output |
| 63 | CLDML | O | Carrier base tray closing motor L output |
| 64 | VSS | – | Power supply GND |

The timing for executing the program of this microprocessor can be monitored at Pin 44 (COUNT).
"L" is output when the program is being executed and "H" during communication or program standby.

In addition, the PARK-LED (green) and SEARCH-LED (orange) on the CMEC unit are points at which the execution of this microprocessor can be monitored.
These two points blink according to mechanism operations carried out by commands.

- When initializing is not carried out (when the position is not fixed), both "green" and "orange" LEDs light up.
- When the operation mode is not set after initializing, only the "green" LED lights up.
- When the operation mode has been set and mechanism operations are carried out, only the "orange" LED lights up.

In addition, the EMERG-LED (red) on the CMEC unit lights up when over current has been detected out during elevation operations of the carrier base.

## ● Timing of tray closing operations on the carrier base

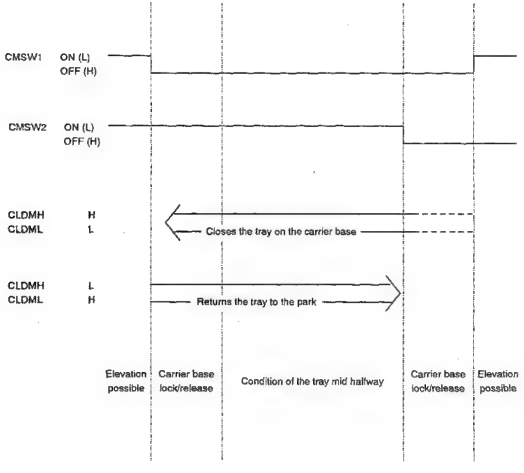



Fig 9

● COUNT TIMING DURING CARRIER BASE ELEVATION AND PIN INPUTS TIMING CHART OF ENCA, ENCB, OUTER (Parity check)

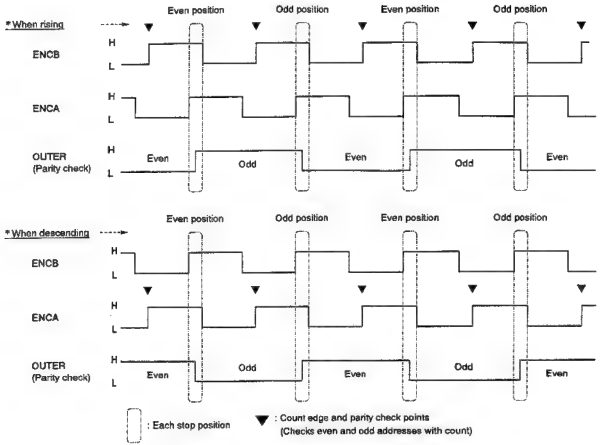



Fig 10

● Elevation initial speed setting and deceleration setting when carrier base is elevating (during search)

| Elevation speed | UDM SP1 | UDM SP0 | Setting Speed |
|---|---|---|---|
| 4th speed (VERY FAST) | 1 | 1 | 128.4mm/sec |
| 3rd speed (FAST) | 1 | 0 | 83.4mm/sec |
| 2nd speed (SLOW) | 0 | 1 | 82.7mm/sec |
| 1st speed (VERY SLOW) | 0 | 0 | 28.8mm/sec |

● Elevation initial speed setting

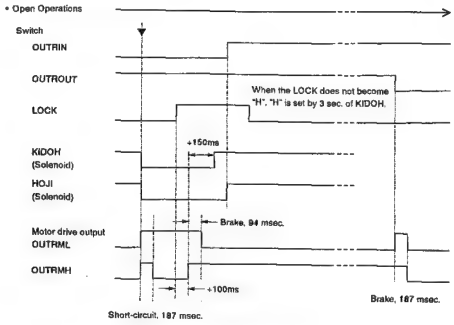
| Difference from target address | Setting elevation speed |
|---|---|
| Above 16 | 4th speed |
| 12 to 15 | 3rd speed |
| 6 to 11 | 2nd speed |
| Below 5 | 1st speed |

● Deceleration Setting

| Difference from target address | Setting elevation speed |
|---|---|
| 7 to 12 | 3rd speed |
| 4 to 6 | 2nd speed |
| Below 3 | 1st speed |

(* No acceleration)

## ● Outer Tray Open/Close Timing (1)




Close operations are carried out for a fixed period of time so that the tray can be unlocked easily.

Fig 11

## ● Outer Tray Open/Close Timing (2)

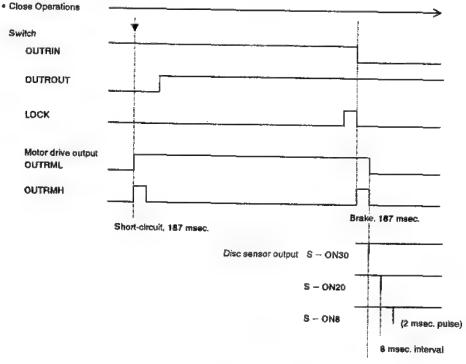
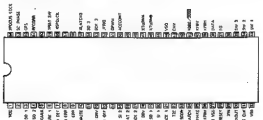



Fig 12

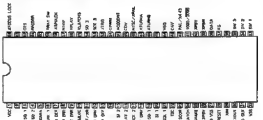
## 10.3 PD0162A1(IC751/FTSB unit):LC-V100/SEM, PD0114B1(IC101/VDEM unit):LC-V200/KUC PLAYER SERVO MECHANISM MICRO PROCESSOR

### ● Pin Connection Diagram

● LC–V200/KUC type



● LC–V100/SEM type



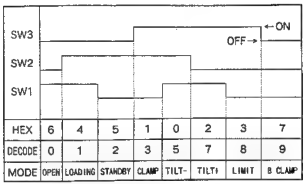
### ● Pin Function Table (LC–V200, LC–V100)

| Pin No. | Pin Name | Function |
|---|---|---|
| 1 | VCC | Power supply connection pin. |
| 2 | N.C. | – |
| 3 | SQ1 | Analog audio switching signal output pin, 1/L. Squelch H. During digital audio, performed by EFM decoder IC:CXD2500AQ control. |
| 4 | SQ2 | Analog audio switching signal output pin, 2/R. Squelch: H. |
| 5 | XANA | Digital/analog audio switching signal output pin. "H"=Digital, "L"=Analog. Signals output to the LINE OUT are switched by this signal. |
| 6 | PARK 1 | Pickup position detection switch input pin (analog signal). Divides the resistance of each switch, reads the values of the A/D input and detects the position. |
| 7 | FREQ DET | RF detection signal input pin (analog signal). Voltage and frequency are proportionate. A/D – inputs the RF detection output to use for the spindle rough servo. |
| 8 | SLDR ERR | Slider error signal input pin (analog signal). A/D-converts this signal and takes it as the control input of the slider servo. |
| 9 | TILT ERR | Tilt sensor output signal input pin (analog signal). A/D – converts this signal and takes it as the control input of the tilt servo. Controls the tilt motor so that this signal becomes 2.5V. |
| 10 | MUTE | Audio system audio mute control signal output pin, "H"=MUTE ON, "L"=MUTE OFF. |
| 11 | N.C. | – |
| | * J F/XR | JUMP FWD signal output pin for PAL. |
| 12 | SLDR DRV | Slider control signal output pin. Period 910 μ sec. Tertiary control H, L, Z.<br>PWM-outputs the slider drive to use for the slider servo. |
| 13 | T OFF | Tracking operation control signal output pin. "H"=OFF, "L"=ON.<br>Backups the ON/OFF of the tracking servo operation with this signal. |
| 14 | N.C. | – |
| 15 | SI2 | EFM decoder CXD2500AQ sub code input pin. Reads the sub codes with SCK2 and this signal. |
| 16 | XLAT2 | EFM decoder CXD2500AQ control latch signal output pin.<br>Transmits the control command using SCK3 of the EFM decoder IC. |
| 17 | SCK2 | EFM decoder CXD2500AQ sub code reading clock signal output pin. Outputs the 98 clocks to read the sub codes. |
| 18 | TILT DRV | Tilt control signal output pin. PWM-outputs the tilt drive to use for the tilt servo. |
| 19 | SO1 | Data input pin from the system controller IC. Serial front to mechanism. |
| 20 | SI1 | Serial data output to the system controller. Serial mechanism to front. |
| 21 | SCK1 | Serial communication clock with system controller. Becomes the input mode when not communicating with the system controller. |
| 22 | TZC | Tracking error zero cross signal input pin. Signal which compares the tracking error signal.<br>During track count search, counts this signal and controls the slider motor. |
| 23 | SCOR | Sub code sync signal input pin. Inputs the sub code signal from the EFM decoder IC:CXD2500AQ when this signal is "H". Also monitors the playback condition of the disc according to the presence/absence of this signal. |
| 24 | NPC LATCH | Not used. |
| 25 | SHAKE | Handshake signal pin for data communication with the system controller IC. This pin is a two way data line and transmits the data transmission timing by switching the output/input mode with the respective microprocessors. |
| 26 | XPBV | LD/CDV playback vertical sync signal input pin. This IC basically operates by synchronizing with this signal. (falling edge) |
| 27 | CN VSS | A/D conversion GND |
| 28 | XRESET | Reset signal input pin, "L"=Reset, "H"=Reset release. Controlled by the system controller. |

| Pin No. | Pin Name | Function |
|---|---|---|
| 29 | XIN | 9 MHz clock oscillating input pin |
| 30 | XOUT | 9 MHz clock oscillating output pin |
| 31 | FTS CLK | Φ external clock output pin 2.25 MHz. Outputs the clock which is the master clock (9 MHz) divided into four for FTS IC:PM3003. Does not output if FTS ICs other than the PM3003 are used. |
| 32 | VSS | GND |
| 33 | SW1 | Switch input pin for loading/tilt position detection |
| 34 | SW2 | Switch input pin for loading/tilt position detection |
| 35 | SW3 | Switch input pin for loading/tilt position detection |
| 36 | – | Not used. Grounded as it is only for input. |
| 37 | FG | Spindle motor FG signal input pin. 24 clocks in one rotation. Frequency divided into three inside the microprocessor and used. |
| 38 | DATA | Input pin for Phillips code decoder with built-in mechanism controller |
| 39 | XPBH | For playback H-SYNC input Phillips code decoding |
| 40 | XPBV | For playback V-SYNC input Phillips code decoding |
| 41 | 1080/2090 | One side/both sides play switching signal pin, Grounded. |
| 42 | N.C. | – |
| | * PAL/X4.43 | PAL/4.43 NTSC switching output pin. |
| 43 | CAV | CAV/CLV switching signal output pin, "H":CAV, "L"=CLV<br>Connected to Pin 6 of PA5013, and used as a video NR switching signal |
| 44 | VSQ | Switching signal output pin of video output, "H"=Squelch, "L"=PLayback video |
| 45 | N.C. | – |
| 46 | XTURNB | α turn position detection signal input pin, "L"=Side B, "H"=Side A, during turn |
| 47 | XTURNA | α turn position detection signal input pin, "L"=Side A, "H"=Side B, during turn |
| 48 | N.C. | – |
| | * NTSC/XPAL | PAL/NTSC signal output pin, L:PAL, H:NTSC. |
| 49 | N.C. | – |
| | * CDV | CDV control pin. Not used. |
| 50 | ACC CONT | Spindle acceleration/deceleration signal output pin. H=Acceleration, L=Deceleration, Z=CD, stop, play |
| 51 | GPWM | Duty pulse signal output pin for spindle gain switching. CLV inner circumference:L,<br>External circumference:H, CAV:L, CDV:H |
| 52 | J TRIG | Track jump signal output pin. Width of "H": Approximately 20 μ sec. For 1 track jump, Beginning of jump:H, Others:L |
| 53 | SCK3 | Serial 3 clock signal output pin. Rising edge reading. "H" period 2 μ sec., "L" period 20 μ sec. |
| 54 | SO3 | Serial 3 data signal output pin, LSB first. |
| 55 | XLATCH3 | Latch signal output pin for spindle servo IC |
| 56 | N.C. | – |
| | * XPLAY | Play signal output pin for PAL, L:Play, H:not play. |
| 57 | N.C. | – |
| | * NtoP | Conversion control pin from NTSC to PAL. |
| 58 | XSPDLCK | Spindle lock signal input pin, Lock:L, Unlock:H |
| 59 | TRAY SW | CD direct tray position detection switch input pin, Grounded. |
| 60 | N.C. | – |
| 61 | RFCORR | RF correction switching signal output pin, H=Gain up. Increases gain at CAV inner circumference, #8000, #8100 |
| 62 | GFS | CD (EFM signal) frame lock signal input pin. Connected to Pin 12 of EFM decoder IC CXD2500AQ.<br>"H"=Lock, "L"=Unlock. GFS means the good frame sync. |
| 63 | SC PHASE | Trick play pin when PAL. Not used, Pull – up. (LC-V200) |
| | N.C. | – |
| 64 | XFOCUS LOCK | Focus servo lock signal input pin. Used for lock detection of focus servo. "L"=Lock, "H"=Unlock |

* LC–V100/SEM Type.

● Loading/Tilt Position
(Descriptions of Pins SW1, SW2, SW3)




| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| HEX | 6 | 4 | 5 | 1 | 0 | 2 | 3 | 7 |
| DECODE | 0 | 1 | 2 | 3 | 5 | 7 | 8 | 9 |
| MODE | OPEN | LOADING | STANDBY | CLAMP | TILT- | TILT+ | LIMIT | B CLAMP |

Fig 13

● Slider Position
(Descriptions of the PARK1, XTURNA pin)

| | CD Inside | CD Active | CDV Active | LD Active | B Side Inside |
|---|---|---|---|---|---|
| XTURNA | ON | ON | ON | ON | OFF |
| PARK1 SW | ON | OFF | OFF | OFF | ON |
| PARK2 SW | ON | ON | OFF | OFF | OFF |
| PARK3 SW | ON | ON | ON | OFF | OFF |
| SLD POS. | 0 | 3.1 | 3.8 | 5 | 0 |

Fig 14

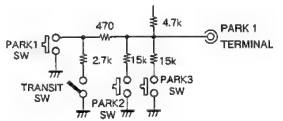



Fig 15

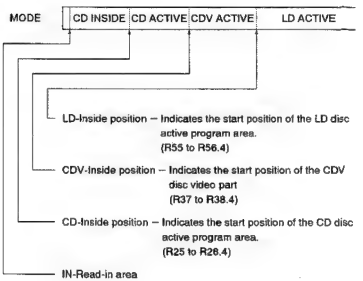



Fig 16

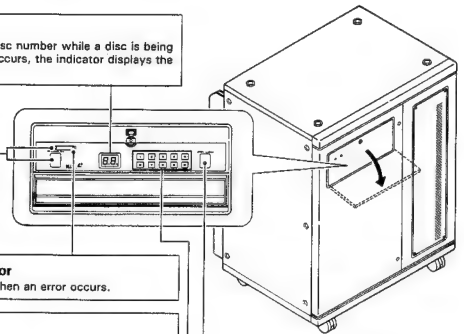
# 11. PANEL FACILITIES

## Front Panel

**STANDBY/ON switch/indicator**
Press this switch to turn the power on or off. Also, you can enter the AutoChanger address setting mode or disc replacement mode by pressing the STANDBY/ON switch while holding down a digit button or the OPEN/CLOSE button while the power supply is switched off.

**Indicator**
Displays shows the disc number while a disc is being replaced. If an error occurs, the indicator displays the error code.

The buttons/switches inside the sealing panel are used when loading or exchanging discs in the tray, or when entering a new address for an AutoChanger.



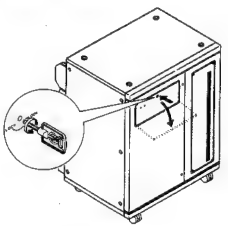
**ERR (error) indicator**
This indicator blinks when an error occurs.

**Digit buttons**
Specify the disc number to be replaced by using the digit buttons in the disc replacement mode.

**OPEN/CLOSE button**
Opens/closes the changer tray or the standard tray when replacing a disc.

**[How to open the door]**

①To unlock the door, insert the supplied key and turn it 90 degrees counterclockwise.
②Press the door to open it.
③To lock the door, shut it and then insert the key and turn it 90 degrees clockwise.

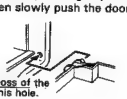


**To remove the door.**

Press in with your fingertips at the left and right hook sections and then slowly pull the door towards you.

**To install the door.**

Press the hook sections with your fingertips as explained in the removal step. Then slowly push the door into position.



● LC-V200/KUC type

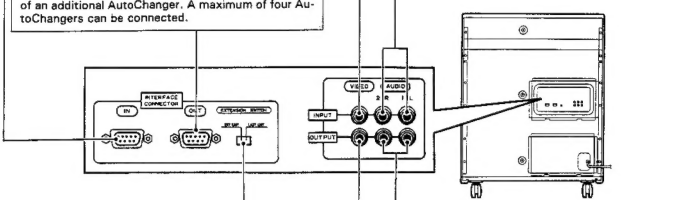
## Rear Panel

**INTERFACE CONNECTOR IN terminal (9-pin D-sub connector)**
Connect to the AutoChanger control of the CO-V200 (use the supplied Interface connector cable).

**INTERFACE CONNECTOR OUT terminal (9-pin D-sub connector)**
Connect to the INTERFACE CONNECTOR IN terminal of an additional AutoChanger. A maximum of four AutoChangers can be connected.

**VIDEO INPUT terminal (RCA jack)**
Connect to the VIDEO OUTPUT terminal of an additional AutoChanger.

**AUDIO INPUT terminal (RCA jack)**
Connect to the AUDIO OUTPUT terminal of an additional AutoChanger.



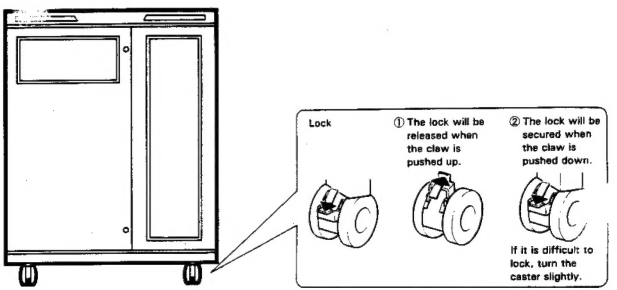

**EXTENSION SWITCH**
Use this switch when installing additional AutoChangers. If this unit is the last unit, shift the EXTENSION SWITCH to " LAST UNIT ". If another unit is further connected for the extension, shift the EXTENSION SWITCH to " EXT. UNIT ".

**AUDIO OUTPUT terminal (RCA jack)**
Connect to the AutoChanger AUDIO INPUT of the CO-V200 (use the supplied audio cable).

**VIDEO OUTPUT terminal (RCA jack)**
Connect to the AutoChanger VIDEO INPUT of the CO-V200 (use the supplied video cable).

## CASTER LOCK

The front ca: are provided with a locking mechanism.
Lock as sh the diagram.



● **LC-V100/SEM type**

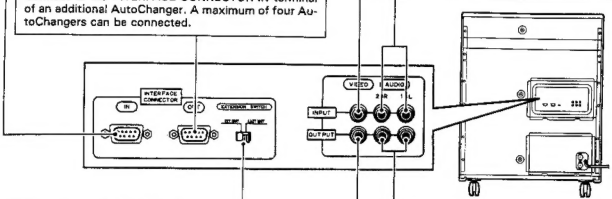
## Rear Panel

**INTERFACE CONNECTOR IN terminal (9-pin D-sub connector)**
Connect to the AutoChanger control of the CO-V100 (use the supplied Interface connector cable).

**INTERFACE CONNECTOR OUT terminal (9-pin D-sub connector)**
Connect to the INTERFACE CONNECTOR IN terminal of an additional AutoChanger. A maximum of four AutoChangers can be connected.

**VIDEO INPUT terminal (RCA jack)**
Connect to the VIDEO OUTPUT terminal of an additional AutoChanger.

**AUDIO INPUT terminal (RCA jack)**
Connect to the AUDIO OUTPUT terminal of an additional AutoChanger.



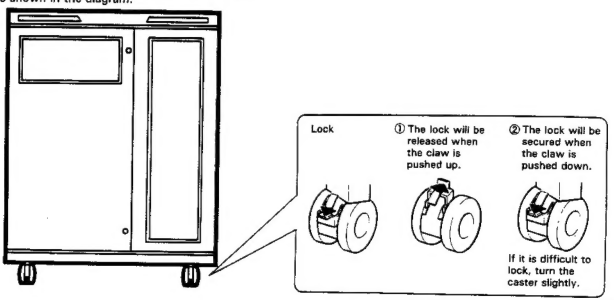

**EXTENSION SWITCH**
Use this switch when installing additional AutoChangers. If this unit is the last unit, shift the EXTENSION SWITCH to " LAST UNIT ". If another unit is further connected for the extension, shift the EXTENSION SWITCH to " EXT. UNIT ".

**AUDIO OUTPUT terminal (RCA jack)**
Connect to the AutoChanger AUDIO INPUT of the CO-V100 (use the supplied audio cable).

**VIDEO OUTPUT terminal (RCA jack)**
Connect to the AutoChanger VIDEO INPUT of the CO-V100 (use the supplied video cable).

## CASTER LOCK

The front casters are provided with a locking mechanism.
Lock as shown in the diagram.



# 12. SPECIFICATIONS

● LC-V200/KUC type

## 1. General

System
··· LaserDisc system and Compact Disc digital audio system
Laser ····· Semiconductor laser wavelength 780 nm
Power requirements ····· AC 120 V, 50/60 Hz
Power consumption ····· 160 W
Weight (without package) ····· 93 kg (205 lbs)
Dimensions ····· 702 (W) x 593 (D) x 896 (H) mm
27-5/8 (W) x 23-3/8 (D) x 35-1/4 (H) in
Operating temperature ··· +5°C to 35°C (41°F to 95°F)
Operating humidity ····· 5% to 85% (no condensation)

## 2. Disc

### LaserDiscs

* Maximum playing times
12-inch standard play disc ····· 1 hour/both sides
12-inch extended play disc ····· 2 hour/both sides
8-inch standard play disc ····· 28 min/both sides
14 min/one side
8-inch extended play disc ····· 40 min/both sides
20 min/one side

Spindle motor speed
Standard play disc ····· 1,800 rpm
Extended play disc ··· 1,800 rpm (inner circumference)
to 600 rpm (outer circumference)
(For a 12-inch disc)

### Compact Discs

DISC ····· Diameter: 5 inches, 3 inches
Thickness: 1.2 mm
Rotation direction (pickup side) ····· Counterclockwise
Liner speed ····· 1.2 to 1.4 m/sec
* Maximum playing times ····· 74 min, 5-inch discs
20 min, 3-inch discs
(For stereo playback)

*NOTE:*
*Playback of 3-inch discs can only be performed when using the standard tray.*

### Compact Disc with Video

DISC ····· Diameter: 5 inches, Thickness: 1.2 mm
Rotation direction (pickup side) ····· Counterclockwise
Liner speed ····· Audio portion: 1.2 to 1.4 m/sec
Video portion: 11 to 12 m/sec

* Maximum playing times
····· Audio portion: 20 min (digital)
Video portion: 5 min (CLV)

** Actual playback time differs for each disc.*

## 3. Video characteristics

Format ····· NTSC specifications
Video output
Level ····· 1 Vp-p nominal, sync. negative, terminated
Impedance ····· 75 Ω unbalanced
Jack ····· RCA jack

## 4. Audio characteristics

Output level
During analog audio output ····· 500 mVrms
(1 kHz, 100%)
During digital audio output ····· 2 Vrms
(1 kHz, 0 dB)
Jacks ····· Both RCA jacks
Number of channels ····· 2

## 5. Other terminals

Interface connector terminal ··· 9-pin D-SUB connector

## 6. Functions

Disc capacity ····· Max. 50
CX noise reduction ····· Automatic switching

## 7. Accessories

Video cable ····· 1
Audio cable ····· 1
Door key ····· 2
Control cable ····· 1
Operating instructions ····· 1

*NOTE:*
*The specifications and design of this product are subject to change without notice, due to improvement.*

## ● LC-V100/SEM type

### 1. General

System
··· LaserDisc system and Compact Disc digital audio system
Laser ····· Semiconductor laser wavelength 780 nm
Power requirements
····· AC 110 V/120 V/220 – 230 V/240 V (Switchable), 50/60 Hz
Power consumption ····· 160 W
Weight (without package) ····· 93 kg
Dimensions ····· 702 (W) x 593 (D) x 896 (H) mm
Operating temperature ··· +5°C to 35°C Operating humidity ····· 5% to 85% (no condensation)

### 2. Disc

**LaserDiscs**

PAL disc
* Maximum playing times
30 cm active play disc ····· 72 min/both sides
30 cm long play disc ····· 2 hour/both sides
20 cm active play disc ····· 28 min/both sides
14 min/one side
20 cm long play disc ····· 40 min/both sides
20 min/one side

Spindle motor speed
Active play disc ····· 1,500 rpm
Long play disc ····· 1,500 rpm (inner circumference) to 570 rpm (outer circumference) (For a 30 cm disc)

NTSC disc
* Maximum playing times
30 cm standard play disc ····· 1 hour/both sides
30 cm extended play disc ····· 2 hour/both sides
20 cm standard play disc ····· 28 min/both sides
14 min/one side
20 cm extended play disc ····· 40 min/both sides
20 min/one side

Spindle motor speed
Standard play disc ····· 1,800 rpm
Extended play disc ··· 1,800 rpm (inner circumference) to 600 rpm (outer circumference) (For a 30 cm disc)

**Compact Discs**

DISC ····· Diameter: 12 cm, 8 cm
Thickness: 1.2 mm
Rotation direction (pickup side) ····· Counterclockwise
Liner speed ····· 1.2 to 1.4 m/sec
* Maximum playing times ····· 74 min, 12 cm discs
20 min, 8 cm discs
(For stereo playback)

*NOTE:*
*Playback of 8 cm discs can only be performed when using the standard tray.*

**Compact Disc with Video**

DISC ····· Diameter: 12 cm, Thickness: 1.2 mm
Rotation direction (pickup side) ····· Counterclockwise
Liner speed ····· Audio portion: 1.2 to 1.4 m/sec
Video portion: 11 to 12 m/sec
* Maximum playing times
····· Audio portion: 20 min (digital)
Video portion: 5 min (CLV)

** Actual playback time differs for each disc.*

### 3. Video characteristics

Format ····· PAL/NTSC specifications
Video output
Level ····· 1 Vp-p nominal, sync. negative, terminated
Impedance ····· 75 Ω unbalanced
Jack ····· RCA jack

### 4. Audio characteristics

Output level
During analog audio output ····· 500 mVrms (1 kHz, 100%)
During digital audio output ····· 2 Vrms (1 kHz, 0 dB)
Jacks ····· Both RCA jacks
Number of channels ····· 2

### 5. Other terminals

Interface connector terminal ··· 9-pin D-SUB connector

### 6. Functions

Disc capacity ····· Max. 50
CX noise reduction ····· Automatic switching

### 7. Accessories

Video cable ····· 1
Audio cable ····· 1
Door key ····· 2
Control cable ····· 1
Operating instructions ····· 1

*NOTE:*
*The specifications and design of this product are subject to change without notice, due to improvement.*

CX is a trademark of CBS Inc.
This autochanger meets the CX EXPANDING SPECIFICATION.